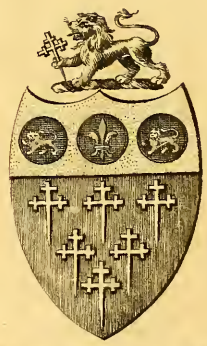


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AN
INTRODUCTION
TO THE
THEORY AND PRACTICE
OF
SURGERY.
VOL. I.



AN
INTRODUCTION
TO THE
THEORY AND PRACTICE
OF
SURGERY.

BY
WILLIAM DEASE,

SURGEON to the United Hospitals of St. NICHOLAS,
and St. CATHERINE, at DUBLIN.

V O L. I.

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MDCCLXXX.



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SURGERY has received so many improvements since the celebrated Heister, in 1718, published his System, that its practice is almost entirely changed. Those various improvements and inventions have, for the most part, been given by authors, from time to time, in detached pieces; which lays the student under the necessity of having recourse to a multiplicity of books, often not easy to be procured, in order to be informed of the progress of his profession.

To assemble in one work all those various and interesting improvements, is the object of the present undertaking; the first volume of which is presented to the public, with all the diffidence that a consciousness

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consciousness of the importance of the subject must naturally create.

The author hopes the arrangement he has adopted, although new, will meet the approbation of those who deign to look over it; as he presumes the adding of practical remarks, cases, and dissections, will more immediately tend to illustrate the theory of Surgery, without interrupting the regular series of the work.

Should his endeavours be deemed of any utility to the younger part of the profession, for whose use they are chiefly intended, he purposes, by successively giving the surgical diseases of the head, trunk, and extremities, to accomplish the whole of his design.

C O N T E N T S.

<i>Preface,</i>	Page ix
<i>A View of the Progress of Surgery, from the remoter Periods of Medical History, to the present Time.</i>	

S E C T. I,

<i>A general View of the Human Body, and Ani- mal Oeconomy, as adapted to Surgery,</i>	10
--	----

S E C T. II.

<i>The General Proximate Cause of External In- flammations, their Symptoms, Distinctions, Prognostics, and Method of Treatment,</i>	19
---	----

S E C T. III.

<i>Of Suppuration,</i>	36
------------------------	----

S E C T.

C O N T E N T S.

S E C T. IV.

<i>Of the Gangrene,</i>	Pag. 51
-------------------------	------------

S E C T. V.

<i>Of Ulcers,</i>	61
-------------------	----

S E C T. VI.

<i>Of Wounds in general,</i>	74
------------------------------	----

P R E F A C E.

TO exhibit a view of the progress of Surgery, from the remoter periods of medical history to the present century, will not, I presume, be deemed useless or uninteresting to the young student; as, at the same time that it presents objects highly worthy of his curiosity, it points out to his imitation those justly celebrated men, who have contributed to the advancement of this science.

If we attend to the learned Le Clerc*, whose critical researches into

* Vide Le Clerc. Histoire de la Medecine.

x P R E F A C E.

the antiquity of medicine, and its gradual progress, from the earlier ages down to the sixteenth century, form a work which will ever insure him a respectable rank, both as an historian and physician, we shall find the history of physic, antecedent to the Hippocratic æra, a mere compound of fable and empiricism.

Hippocrates, the common parent of Physic and Surgery, found the practice of those professions centered chiefly in the strolling philosophers of those days*, whose ill-directed inquiries, vain philosophy, and idle theories, were by no means calculated either to extend or cultivate the knowledge of physic. He, therefore,

* Bordeu, Recherches sur quelques Points de l'Histoire de la Médecine.

with

with a sagacity peculiar to himself, drew a line between those professions, which made philosophy but a part of a physician's education. He collected from the medical registers, that were generally exhibited in the temples, all the observations on the various diseases, that either chance or experiment brought to light. These, with what his own extensive practice furnished, in the course of a long life, dedicated to the most noble pursuits, afforded him ample materials for composing a system of physic, which, as handed down to us, is at once a striking monument of discernment, penetration, and industry.

From this illustrious era, down to Aretæus, Celsus, and Galen, time has nearly obliterated all medical

transactions ; nor can we, with any degree of certainty, presume how far the works of Hippocrates contributed to improve the practice of his immediate successors, as their circulation, for many obvious reasons, must have been very circumscribed, and could not well extend, for some time, beyond the limits of the Grecian islands.

It will be here necessary to return and take a view of Surgery, as a distinct science, and see in what light it is probable to imagine it was looked upon in those early times ; by which we may be enabled to develop the reason, why the cultivation of this science did not excite that degree of attention the evident utility of its practice ought justly to have claimed ; especially in rude and barbarous

barous times, when savage ferocity made even life itself to be frequently held on a very precarious tenure.

In this early, and more uncivilized state of society, the constant necessity mankind were under of seeking relief, from the variety of accidents to which they were daily exposed, has induced the greater number of medical authors to coincide, in supposing surgery to have been by far the earlier part of Physic. To this opinion it may be objected, with much reason, that the knowledge requisite to render this science any way useful, was not even thought of in those early ages, nor until long after Physic became a profession, and had made some progress; besides, the danger, apparent cruelty, and uncertainty, in

administering those helps in surgical cases, would naturally deter even the most intrepid, though strongly impelled by the feelings of humanity ; and this would still have more force with the first physicians, whose reputation might be the forfeit of their ill success ; for it makes an essential difference to a practitioner, when his patient may become the immediate and evident victim of his experiment, which has often happened in Surgery, and when he runs no risque of having evident proofs of his ignorance appear against him. X

We may therefore well imagine these were powerful motives to incline timid philosophers, rather to the practice of Physic than of Surgery, the event of which must have been extremely

tremely precarious ; and that they might have influenced even Hippocrates himself to relinquish the practice of the latter to itinerants, who set no great value on reputation ; for notwithstanding he collected every thing that was known of Surgery in his time, it is much to be doubted whether he ever operated himself : and we have a strong instance of his caution in this respect, which he even extended to his pupils, by including in the oath he administered them, a prohibition of cutting for the stone.

We are naturally arrived to the second memorable era of Physic and Surgery.

When Areteus, Galen, and Celsus, contributed to improve and illustrate the works of their great predecessor, the inattention of the two former to the improvement of Surgery, is evident; the first has left us little or nothing on the subject; the latter did not hold it in that degree of estimation to think of improving it. But in Celsus we find that system of Surgery, which, with what Hippocrates left, has ever since been a standard for professors to teach, and authors to comment on: nor can we find any considerable improvement it received, not even in the hands of that acute people, so distinguished in Physic, the Arabians, until the sixteenth century. For notwithstanding anatomy, in the thirteenth century, became an object of attention in Italy,

ly, to a few, as Mundinus, and J. B. Carpus, and that some authors in Surgery appeared, as Brunus, Saliceto, Lanfranc*, whose writings Cauliaco reduced into a sort of system; yet, whoever will take the trouble of looking over their several works, will find that the knowledge of Surgery was very little advanced by them.

In the beginning of the sixteenth century, the spirit of anatomical enquiry took place of that blind acquiescence in the opinions of the ancients, particularly in those of Aristotle and Galen. Vesalius appeared, who freely exposed and corrected their mistakes, and absurd theories; Eustachius, Columbus, and Fallopius,

* Dr. Freind mentions two Englishmen of this class about that time, Aadern and Gadesden.

contributed

xviii P R E F A C E.

contributed to advance anatomical knowledge still farther by their researches, which received the most solid acquisition in the discovery of the circulation of the blood, by the great Dr. William Harvey, published by him in 1628. This laid open and facilitated the true method of attaining the knowledge of anatomy, a science which is now arrived to as high a degree of perfection as perhaps it is capable of receiving. I shall pass over the detail of its progress, as not being immediately connected with the present subject.

Previous to that period, when anatomical knowledge began to be cultivated and extended, we cannot, with any degree of propriety, consider

sider Surgery as a science resting on solid principles; and being mostly in the possession of rude, illiterate men, it was deprived of the advantages which the restoration of letters, and cultivation of anatomy, would otherwise have procured it.

In the thirteenth century, the intestine troubles of Italy obliged many learned men to abandon their native country, and take refuge in France, among whom were some surgeons of reputation, particularly Lanfranc, a Milanese.

If we take a view of the state of Physic in France, from the earliest times, even down to the fifteenth century, we shall find it chiefly ingrossed

grossed by the clergy *. It was with great reluctance the university admitted it as one of their faculties, which did not take place until the latter end of Lewis the seventh's reign. After the study of Physic was established in the university, Surgery became a separate profession, when the chief care and direction of the sick devolved on the surgeons ; the physicians, who were only occasionally consulted by them in their chambers, formed their opinion by the urine of the sick, and gave their directions accordingly to the surgeons.

In 1452, physicians, who before were under an indispensable rule of celibacy, in order to be associated to

* Vide Recherches critiques & historiques sur l'Origine de la Chirurgie.

the university, were permitted to marry, and to live out of it; and the clergy were discountenanced in practising physic. A jealousy and rivalry now took place between the professors of Physic and Surgery: the latter, till this period, had been, in a great measure, in possession of the clinical practice of both professions, and had erected the college of St. Come, and instituted lectures in favour of their pupils. But this prosperity of Surgery was by no means favourable to the interests of the physicians, who, in order to oppose its farther progress, and circumscribe and curtail its practice as much as possible, made use of the barbers, who had already been introduced by the surgeons themselves to do the meaner offices of the profession.

sion. The physicians established lectures in their favour, procured them many privileges, arrogated to themselves the power of deciding in all matters relative to Physic, and at length procured that heterogeneous junction of the surgeons with the barbers, to the disgrace of a science, on the advancement of which the happiness of mankind so much depends, and to the lasting dishonour of the authors, and of the age in which that act took place.

Surgery, loaded with disgrace, circumscribed in its practice, fettered in its privileges, would have ever remained a profession which a man of a liberal education would have been ashamed to embrace, had not its good genius got those acts rescinded,

scinded, in raising up Marechal and La Peyronie, who, by their indefatigable zeal for the honour and advancement of Surgery, procured this science that honourable rank in society, from which nothing but the rudeness and illiberality of the times could have excluded it.

In Germany, and the northern nations, Surgery, till within this century, was scarcely known as a regular science. The learned Heister cannot be suspected of exaggerating the ignorance of his countrymen; yet, in his preface to his System of Surgery, he tells us, the extent of their knowledge could hardly rise superior to bleeding, opening an abscess, or, at most, setting a fracture, or reducing a luxation; leaving surgical

xxiv P R E F A C E.

gical diseases, and operations of any moment, to itinerants and quacks, with which Germany swarmed then. However, a reformation soon took place, and, if we may be allowed to judge from the many valuable modern productions of German authors, Surgery is on a very respectable footing in that country.

When we consider that, before the reign of Henry the eighth, the practice of physic was mostly ingrossed, as Dr. Freind remarks *, by illiterate monks and empyrics, who might easily obtain a licence to practise from the bishop of London, or dean of St. Paul's, in whom the power of approving practitioners in London was vested, as it was in the other

* Vide his History of Physic.

bishops,

bishops, in their respective dioceses, until Linacre, by his interest with Cardinal Wolfey, obtained a patent for incorporating a college of physicians, endowed with exclusive privileges, we cannot be surpris'd that the progress of Surgery in England bore no proportion to that of France, and that the greater number of court surgeons for many years were foreigners.

From the Restoration, which was so favourable to the revival of the arts and Sciences in England, we find from time to time some eminent men, who contributed to the advancement of Surgery: but, two obstacles oppos'd its making that progress it otherwise would have made ;

b

first,

first, the surgeons laboured under that disgraceful junction with the barbers, which cramped their industry, and restricted to a small number the pupils admitted into the hospitals, and clogged the privilege of dissection with so many difficulties, as rendered it of little use. The other arose from the physicians, who assumed the right of lecturing on both anatomy and surgery. Those lectures which related to the latter must have been very defective, for this obvious reason, that they were not actual practitioners.

After Dr. Read, who seems rather to have been a surgeon than a physician, those lectures were discontinued; and Mr. Woodal and Mr. Clowes

Clowes took up the laudable design of teaching their own profession. And it is somewhat strange, that Wiseman* hopes the physicians will not be offended. By this we may conjecture that it was the first attempt of the kind. From this time, Surgery became a respectable profession, and received considerable improvements.

In 1748, Mr. Ranby and Mr. Chelfelden obtained a charter for incorporating and forming a Company of Surgeons, with such privileges as were conducive to the farther advancement of this science, and a total separation from the corporation of barbers. Those favourable acts

* Vide the Preface to his Surgery.

the surgeons improved so far, as to make their present surgical lectures equal, if not superior, to those of France ; and we are every day indebted to them for some new improvement.

In Edinburgh, before the time of Mr. Monro senior, Surgery and Pharmacy were united ; which, I believe, still generally prevails : there were no public lectures on physic, and the dissection of a human body was exhibited only once in three years, and no hospital was erected. Dr. Monro and his father, with an uncommon zeal for the advancement of physic, in 1720, removed all those disadvantages : lectures on the different branches of physic were instituted,
a regu-

a regular course of Anatomy and Surgery was given in winter; and soon after, a commodious hospital established. All those advantages induced students from all parts to study in Edinburgh; and it became, and still continues, one of the most respectable schools of Physic in Europe.

If Surgery, in Ireland, has not advanced in proportion to what it has done in the neighbouring kingdoms, we may justly impute it to the many peculiar disadvantages the profession has laboured under. Hospitals, the true seminaries of Surgery, were not so early opened, nor had we any regular course of Anatomy given until within these few years.

The furgeons were never formed into any regular fociety, nor was there any general fyftem of furgical education adopted, and the incorporation with the barbers ftill exifts.

We fhall now take a curfory view of the authors who, from the fixteenth century, have contributed in any eminent degree to the advancement of Surgery.

There are few furgeons have ever held fo diftinguifhed and honourable a rank as Ambrofe Paré, who lived in the fixteenth century: he poffeffed all the advantages which a juft difcernment, quick penetration, and fertility of invention afford, in
attaining

attaining an intimate knowledge of surgery. Paré soon rose eminently superior to all his contemporaries in science, which procured him the honour of being first surgeon successively to four kings of France, who reposed the utmost confidence in his knowledge and dexterity in operations: and whenever they sent him to preside over the camp hospitals, the military might look on it as a particular mark of royal attention. He has left us an undoubted proof, in his *System of Surgery*, that he was by no means inattentive to improve those favourable opportunities to the best advantage.

If, in order to be respectably voluminous, Paré has introduced many

b 4

points

points of phyſic, little connected with his immediate object of inquiry, and which rather tend to obſcure than illuſtrate it, this we may juſtly impute to the rude ſtate of literature in thoſe times, and the prevailing extenſive taſte of writers, who ſeldom confined themſelves merely to their ſubject.

In his Introduction, he, in ſome meaſure, adopts the then generally received principles of elements and temperaments: to his Anatomy, which is far from being deſpicable, he joins that of the comparative: on tumours, he has many uſeful practical remarks; thoſe on the enlargement of the meſentric glands in ſcrophulous patients; the danger in
meddling

meddling with hard painful polypuses in the nose; opening tumours in ano, without waiting for their complete suppuration, to obviate the danger of the rectum being injured; against the precipitate opening tumours of the knee; internal aneurisms; that are the consequence of the venereal disease, particularly claim our attention.

He is extremely judicious in advising bronchotomy, and presents a more simple view of wounds of the head. He lays aside all those uncertain and frivolous symptoms annexed to fractures by preceding authors, clearly describes those which arise immediately from concussion, and those which succeed in some days,
and

and are the consequence of a sup-
puration formed on the membranes
or the brain: he particularly observes
having seen the brain affected, and
the liver imposthumated, in those
cases. He is exceedingly descriptive
in his diagnostics of wounds of the
head, and no less judicious in his
general mode of treatment.

When we consider the method of
treating gun-shot wounds, and of
stopping hæmorrhages, in his time,
we are struck with an inconceivable
degree of horror and surprize, that
any patient would submit, or could
survive having his wounds cauterized
with boiling oil, or red-hot irons.
The absurdity, cruelty, and ill con-
sequence of this practice, Paré forcibly
exposed,

exposed, and substituted soft ointments, &c. in the place of the boiling oil*, and the ligature in that of the cautery. He clearly shews, that it is to the concussion, contusion, and laceration of the parts, in gun-shot wounds, and not to any poisonous quality in the powder, which was then the prevailing opinion, that those alarming symptoms ought to be attributed. In short, his works may be considered, with every degree of propriety, as the basis of modern Surgery; and there are few points of this science that he has not illustrated with valuable observations.

To Ambrose Paré succeeded Pigray and Guillemeau, both his pupils.

* See Note I. p. 91.

The first has judiciously abridged and improved the works of his master; the latter extended his midwifery. These three authors may be considered, with no great variation, as the standard of practice in France, until the age of Lewis the fourteenth, an æra justly distinguished for the liberal encouragement and advancement of the arts and sciences.

The first surgical character of that age, who claims our attention, is Marechal. We find by the eulogium of this surgeon, in the Memoirs of Royal Academy of Surgery *, that he enjoyed a distinguished reputation at a very early period of life. He excelled in all the operations, but more

* Tom. II.

particularly

particularly in that for the stone, cutting in the method of the apparatus major, which he rendered more simple and sure. Of this he gave the most conspicuous and successful proofs on people of the first rank.

He succeeded Mr. Felix, as first surgeon to Lewis the fourteenth, in 1703, who conferred on him every suitable mark of distinction. The accession of Lewis the fifteenth made no change as to his situation. How much his endeavours, united to those of La Peronie, contributed to the advancement of Surgery in France, we have already taken notice of. We find in Dionis and Garangeat some excellent observations of his: there is one, particularly, mentioned in
his

xxxviii P R E F A C E.

his elogium, of matter formed under the scapula, to which he successfully gave exit by trepanning this bone. He seems to have possessed that diffidence, so characteristic of real merit, which opposed his publishing the various observations his long and extensive practice must have furnished, which may be considered as an essential loss to Surgery.

Mr. Petit, the son, was formed by nature for excelling in Surgery, possessed the advantages of a most liberal and extended education, joined to the sollicitude of a father for his instruction, who was himself the most celebrated surgeon of his time: therefore we cannot be surpris'd that this gentleman was, at a very early period

period of his life, so eminently distinguished in his profession.

In 1734, he was appointed surgeon-major to an army of 100,000 men, although not yet arrived at his twenty-fourth year, and, during two campaigns, acquitted himself of that important trust, both to his own honour, and that of the minister's discernment in the appointment. A premature death, much to be regretted, and which seems to have been the consequence of too great a zeal in attending the different duties of his profession, frustrated all his extensive views for the advancement of Surgery.

We have two excellent dissertations of his in the Memoirs of the Royal Academy

xl P R E F A C E.

Academy of Surgery *. The first is on extravasations of blood, the consequence of wounds in the abdomen, which, he says, are generally circumscribed at the inferior part, and not diffused, as authors imagine, through the folds of the mesentery and intestines; and points out the necessity of making an incision on the most prominent part of the tumour, to give exit to the extravasated blood. The second is on imposthumes in the liver, in which he lays down the difficulty we often meet with in practice, to judge when those tumours terminate in suppuration, their extent, or parts engaged; the patient often dying before we can determine,

* Tome II.

except

except when it visibly points outwards. He instances where the matter has been discharged into the thorax through the diaphragm, or into the colon, and evacuated by stool: but whether an evacuation of the matter is procured by incision, or that nature interposes, our success will depend on the adhesions the tumour previously contracts with the surrounding parts, which circumscribe the effusion of the matter.

In whatever point of view we consider the character of La Peyronie, we shall find few more respectable: singularly zealous in his attachment to Surgery, he was indefatigable in promoting its advancement, and

establishing in France a liberal mode of surgical education, to which he contributed the greatest part of a large fortune, acquired in the course of a long and extensive practice; an act so truly patriotic, and of such general utility, as justly claims every grateful remembrance. His abilities as a surgeon were early distinguished, of which he gave the most successful and striking proofs in the camp-hospitals, and in restoring to health, in the most delicate and critical cases, many sovereign princes.

He succeeded Marechal as first surgeon to Lewis the fifteenth, in 1736. We have some valuable observations of his, dispersed in the first volume of the Memoirs of the Royal Academy

Academy of Surgery. The most important are those on hernias, where the intestine is gangrened; the manner of procuring an adhesion of the remaining sound part of the gut to the abdominal ring, or some of the surrounding parts, and the method of treatment after, is judiciously laid down. The obstacles that oppose the natural ejaculation of the semen, he found frequently to consist in cicatrices over the veru montanum, the consequence of venereal gonorrhœas, which changed the natural direction of the orifices of the seminal ducts, or, in small indurations, or strictures in the corpus cavernosum opposing a complete erection or ejaculation. He ingenuously confesses the ill success of mercurial

frictions, if the patient has no actual venereal taint, and recommends the waters of Barrege. He gives a curious instance of a mortal stricture on the intestine, interiorly formed by the adhesion of the omentum to the peritoneum above the abdominal ring.

As the immediate object of this introduction limits us to those Surgeons, whose writings are, in general, only to be met with in books that are seldom in the hands of the young student; and it being unnecessary to mention the authors on operations, &c. to whom we shall have so much occasion to have recourse, in the series of this work, we shall close the account of the French surgeons

surgeons with that of Mr. Petit the father.

Penetration, discernment, and industry, joined to a lively and inventive genius, seem to form the character of this justly celebrated surgeon. Zealous for the honour and advancement of Surgery, he sustained, almost singly, the credit of its schools. He was associated to the Academy of Sciences in 1715, in the Memoirs of which, we have some valuable improvements of his. There is one very essential, particularly to the military, where, in the hurry and confusion of the day of battle, many would bleed to death, were it not for his invention of the tourniquet. He filled the most honourable offices in his profession

with reputation, and affords us a convincing proof how far those happy and rare talents, which he derived from nature, will supply the defect of a liberal education *, in the pursuit of surgical knowledge.

The solid improvements Surgery received, in England, from the hands of Mr. Cheselden, are too well known to admit a minute detail. He seems to have possessed all those happy talents, which secured to him that superiority in his profession he so justly acquired, and so long enjoyed. At twenty-two years of age he became professor of anatomy, and soon

* He began at forty years of age to learn Latin, and succeeded so far as to be able to understand authors in surgery, who wrote in that language.

after

after published his concise and elegant book on that subject, which he has made more valuable by a number of curious observations in Surgery.

His improvement in cutting for the stone in the lateral manner, induced Mr. Morand, a Surgeon of the first reputation in France, to come to London, in 1729, to be instructed by him in this operation; and he gratefully acknowledges he was not disappointed in his expectations. Mr. Garangeot, soon after Mr. Morand's return, set up an ill-founded claim to the honour of the invention of the lateral method in France; but this by no means diminished the respect in which the Academy of Surgery held

Mr. Cheselden; he was associated to the academy at its first institution.

His improvements in amputating by the double incision *, extracting polypuses, making a ligature on enlarged tonsils, and the incision for a contracted iris, give us an idea of his penetration and discernment; and his own testimony, in possessing that happiness of mind, that was never ruffled or disconcerted, and a hand that never trembled during any operation, shews his abilities as an operator.

On reviewing the progress of Surgery, we find its advancement

* But it appears from Petit's posthumous works, that he amputated by the double incision prior to Mr. Cheselden.

was,

was, for a long time, unfortunately opposed by an opinion, which still too much prevails, reducing this science to a mere mechanic art, requiring in the student no previous liberal or extended education. But, if we consider Surgery in a true point of view, we shall readily perceive the absurdity of this opinion, and be convinced that the operative part of this science requires the least exertion of a surgeon's abilities; and that to judge with precision when to operate, to be ready to relieve supervening symptoms, which may be so various from difference of constitution, complicated cases, &c. will afford a surer test of surgical capacity.

The immediate object of either
Physic or Surgery, is the preservation
or

I P R E F A C E.

or restoration of health. The province of Surgery takes the direction of those diseases that are more immediately submitted to the senses, and fall under the general denomination of external ; while Physic limits itself to the internal.

If we consider how essentially necessary an intimate knowledge of the œconomy of the human body is to either profession, and the impossibility of attaining this by mere dissection ; how extensive a study physiology is, and the various branches of natural philosophy with which it is connected ; we shall easily conceive the insurmountable difficulties a student of a confined education will meet with, even in that which should

should be the first object of his attention.

The diseases to which mankind are exposed, whether external or internal, are so intimately connected, and some so extremely similar, both in their progress and event, as mutually to illustrate each other, that it is impossible to understand some of them, when entirely ignorant of all the rest.

There are few surgical diseases of any moment, that do not either induce or proceed from various morbid changes in the system: to all operations, or accidents of any consequence, succeed fevers, and a variety of nervous affections, running more
or

or less high, and terminating variously, according to the difference of particular habits of body. A Surgeon, whose knowledge is limited to outward applications, and manual operation, would be ill calculated to conduct his patients through these complicated cases, attended with fevers, inflammations of the most alarming nature, gangrenes, critical depositions, large suppurations, dangerous absorptions of matter, which excite in the nervous system a dreadful variety of spasmodic affections, or, by vitiating and melting down the crassis of the fluids, exhaust the patient in profuse sweats, or colliquative purging; or, by being translated to some of the more important viscera, put a quick period to the patient's misery,

misery. These are accidents which frequently happen, and are not to be obviated or relieved by mere mechanical address, but require in the Surgeon an intimate and extended knowledge of the animal œconomy, materia medica, and history of diseases.

A gentleman *, whose opinion in other respects justly claims the greatest deference, has advanced, "that if Surgery was confined to a set of men who were to be merely operators, the art would be more quickly brought to perfection by such men, than by those who followed a more complicated business, and practise all the branches of physic." As if the ad-

* Dr. Gregory, Lectures on the duties and qualifications of a physician, p. 47.

vantage

vantage arising from a liberal education, and knowlege in other branches of phyfic, should disqualify a surgeon from being a good operator, or making any improvement in his profession. Both reason and experience totally disprove this opinion; for it is obvious that Surgery, until within this century, was chiefly practised by such men, who left it in as rude a state as they found it; and that we are by no means indebted for the present advanced state of the profession, to illiterate, mechanical surgeons, but to men of genius, improved by education, and a suitable knowlege of phyfic.

The mind of the young student cannot, therefore, be too strongly impressed

pressed with the true idea of Surgery, which is a liberal science; and wherein, to arrive at any degree of eminence, requires a peculiar and happy turn of genius, a previous college education, an acquaintance with all branches of physic, joined to an address in operating, which, by dissection, and practice on proper subjects, he will easily acquire.

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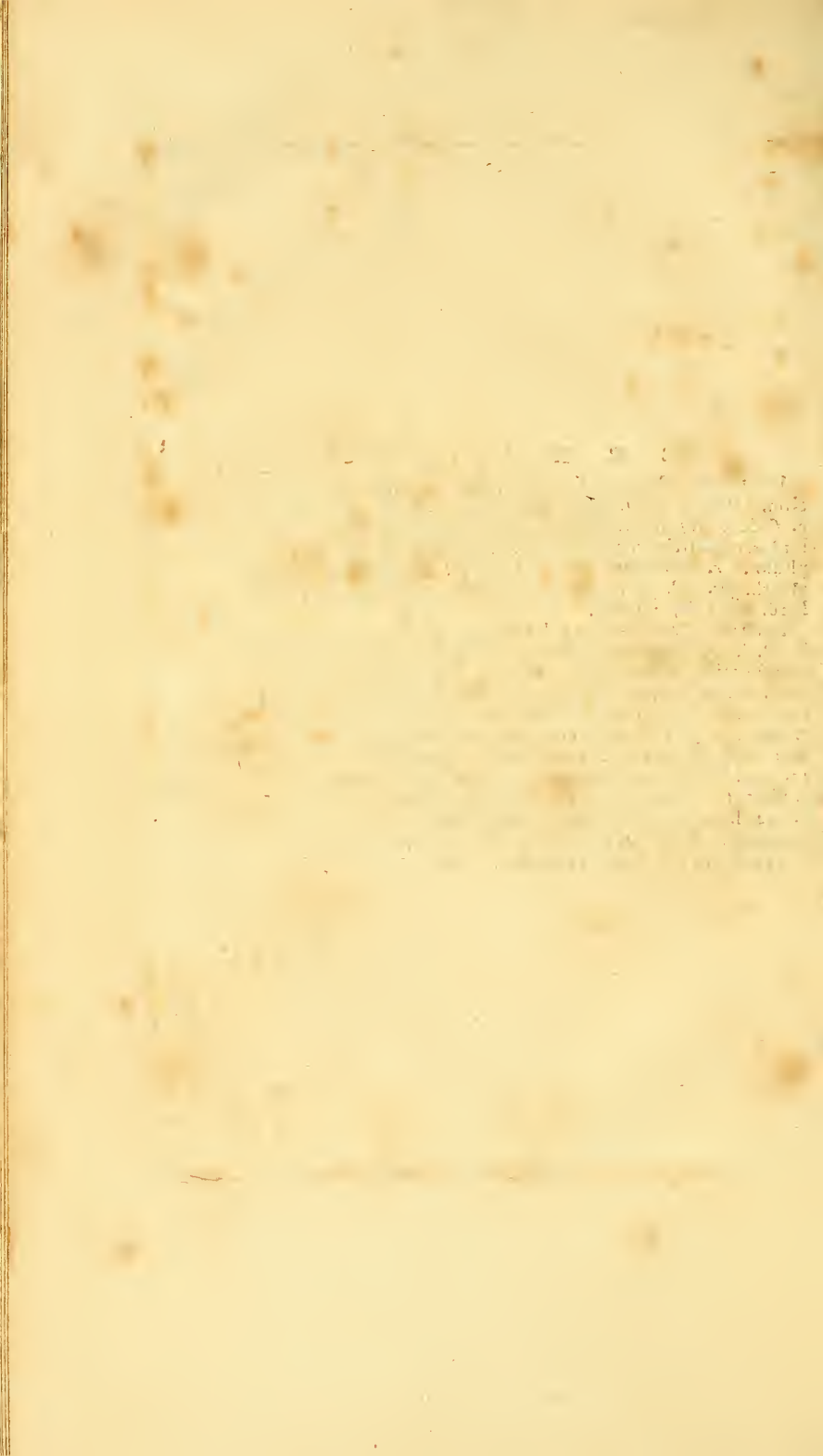
PREFACE.—Page 10. line 9. *for* empyricism, *read* empiricism. P. 24. l. 14. *f.* empyrics, *r.* empirics. P. 31. l. 8. and 9. *f.* dexterity in operations, *r.* dexterity in operating. P. 32. l. 18. *f.* mesentric, *r.* mesenterick. L. 19. and elsewhere, *f.* scrophulous, *r.* scrofulous. P. 34. l. 12. *f.* hæmorrhages, *r.* hemorrhages. P. 37. l. 17. *f.* Garangeat, *r.* Garangeot. P. 52. l. 16. *f.* crassis, *r.* crasis.

INTRODUCTION.—P. 13. l. 25. *f.* ganglyons, *r.* ganglions. P. 28. l. 17. *for* exfude. *r.* exude. P. 31. l. 1. and elsewhere, *f.* exsudation, *r.* exudation. P. 32. l. 3. *f.* emolient, *r.* emollient. P. 33. l. 1. *f.* camomil, *r.* camomile. P. 39. l. 17. and elsewhere, *f.* diarrhea, *r.* diarrhœa. P. 43. l. 4. *f.* siface, *r.* surface. P. 48. l. 6. *f.* encourage, *r.* encouraged. P. 47. l. 21. and elsewhere, *f.* gonorrhea, *r.* gonorrhœa. P. 60. l. 10. and elsewhere, *f.* schyrrous, *r.* scirrhus. P. 62. l. 12. *f.* violent, *r.* violet. P. 72. l. 19. *f.* decoctions, *r.* decoction. P. 114. l. 17. *f.* dispositions, *r.* disposition. P. 120. l. 7. *f.* linament, *r.* liniment. P. 137. l. 6. *f.* veneral, *r.* venereal. P. 153. l. 9. *f.* sixpenc, *r.* sixpence.

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INTRODUCTION
TO THE
THEORY AND PRACTICE
OF
SURGERY.

SECT. I.

*A General View of the Human Body and Animal
Oeconomy, as adapted to Surgery.*

THE more general and least complex division of the various parts which form the human body, is into solids and fluids; the structure and composition of the solids differ according to the particular uses they are destined to fulfil.

The bones, which may be considered as adapted to give form and figure to the body, sustain and defend the softer parts, are composed of solid, compact fibres, differently arranged, according to the particular conformation of each bone; but in general so disposed, as externally to form laminæ of different extent,

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tent, strata, and compactness. The internal structure of most bones is of an irregular, spongy, cellular, or reticular texture, particularly near their extremities, which depends on the receding of the different laminæ from each other, the more internal decreasing gradually in length. By comparing any of the long bones of the extremities, as the femur, or tibia, with the broad ones, as those of the head, &c. we shall have the several peculiarities of the different classes.

Those long bones, which require a considerable degree of strength, and are fitted for motion, are more solid and compact in the middle, and gradually enlarge towards their extremities, where they are internally of a loose cellular texture. This structure, as Winslow observes *, is well calculated to give strength without any superfluous incumbrance of weight; and to encrease the extent of the articulated pieces, which affords room for the insertion of muscles and ligaments, and securely facilitates the motion of the joints.

The exterior and interior surfaces of broad bones are formed of compact bony laminæ, while the intermediate space between them is

* *Vide*, his Anatomy.

made up of a curious cellular substance, which takes in general the name of diploe.

Over the external surfaces of bones is extended the periostium, a fine, strong, inelastic, membranous expansion, adherent to the bones, not only by an infinite number of its membranous filaments, which insert themselves into their pores, but by the various vessels that pervade them, both for their nutrition and the secretion of the medulla.

All the internal cavities, and cellular or reticular substance of bones are filled, either with an unctuous fat substance, termed marrow, or, when in a more attenuated and liquid state, medullary oil, as we find in the extremities of long bones, and diploe of broad ones, and, in general, in all the small ones. This fine oily matter is deposited in membranous cells, communicating with, and joined to each other, and surrounded by one general fine membrane, which adheres, like the periostium, to the internal surface of the bones.

The ends of all those bones, which have moveable articulations, are covered with a smooth, white, elastic substance, which facilitates the free and easy motion of the joints, and confines the osseous fibres, termed cartilages.

Cartilages are distinguished into different classes, according to their particular uses ; but they are all subservient either to facilitate the motion, or immediate junction of the bones, or are added as appendices to them : they are of a more tender and brittle substance than bones, and often with age become really bony ; the perichondrium is extended over them, except at the moveable articulations, as the periostium is over the bones.

It would be a difficult task to reduce into their proper classes, the different series of vessels, that we see pervading fresh bones, on separating the periostium ; it is more than probable they are of all classes.

All the moveable articulations are sustained in their proper situations by ligaments ; substances made up of very small, strong fibres, closely compacted and differently arranged, so as to be fit for their several uses ; some are disposed like chords, bands, &c. while others take a membranous form, and surround the joints ; the short round ligaments are for the most part inelastic, but the broad membranous, or capsular ones, are more or less elastic. On opening any of the moveable articulations, we find a viscid liquor like the white of an egg, termed

termed *sinovia*, which lubricates the joints, facilitates their motion, and obviates the ill effects of friction; this liquor is furnished by the exhaling extremities of the arteries differently ramified on the surface of the burfal ligaments, the transudation of the fine medullary oil from the extremities of the bones, and the mucus secreted by conglomerate glands situated in small cavities within the joint, so as to be secured from any violent preffure in the different motions of the joints.

Some modern phyfiologists have distinguished those more solid parts, which so largely contribute to form the general system, from their inorganic appearance, into inert solids; and in this class they include the cellular membrane, cuticle, nails, &c.

By attending to the gradual advances of fetal bones to complete ossification, we find them in very young fetuses, in common with the other parts, a mere gluten, which after puts on the form of membranes; and we may easily perceive the osseous fibres, particularly in the bones of the cranium, like rays shooting between them from the center to the circumference, more or less divaricated; in the intervals run the different series of ves-

fels, some loaded with a cretaceous or osseous principle, by which the bony fibres encrease and approximate, so as gradually to lessen the vascular structure, and acquire solidity and compactness. The only difference in long bones, &c. is, that the bony fibres shoot between the external and internal periostium in an irregular ring-like manner.

The solidity and compactness of bones will be encreased in proportion to the obliteration of their vascular texture, which, carried to a certain point, as in old age, renders them extremely brittle; but while the different series of vessels easily pervading them, and furnishing an abundant secretion of medullary oil, preserves to them a proper combination of tenacity and rigidity, more capable of resisting external violences than the hard inorganic texture of old age, it subjects them more to diseases analogous to those incident to the softer parts.

It has been a matter of much recent physiological disquisition to ascertain whether tendinous, apponeurotic, ligamentous, cartilaginous, cellular, and bony parts, were endowed with sensibility or not, and in what degree: to the first parts, the ancients annexed an extreme degree of sensibility, which made
them

them apprehend the worst consequences from their being wounded.

Mr. Haller * has, from a variety of experiments made on living animals, been induced to adopt a contrary opinion, which divests those parts of sensibility and danger in wounding them. It is extremely obvious they are all more or less vascular; and although we cannot satisfactorily trace those fine nervous filaments that enter them, we have yet the strongest proof of their existence, in the exquisite pain attending their being in an inflamed or suppurated state. It is true, that bones, exposed and immediately submitted to those kinds of proof, give no signs of sensibility; but in an inflamed or carious state they certainly do: it is much more reasonable to consider this property relatively, and which, to appear in those parts, requires a certain degree of expansion in those fine nervous fibrils, that otherwise may be either too much enveloped, or too closely compacted.

* *Vide* his Dissertation on Sensible and Irritable Parts.

THE MUSCULAR SYSTEM.

The moving powers, which are the muscles, present themselves next to our consideration; they are composed of a number of red fleshy fibres, somewhat elastic; in general running parallel to each other, and connected by cellular membrane; a parcel of these, so connected, form fasciculi, or little bundles, which; differently arranged and joined together by a more loose cellular texture containing some fat, make up larger ones; the intermediate space between those bundles we find filled up with cellular membrane, containing more or less fat; a muscle so formed is enveloped in a cellular sheath, seemingly a production of that which connects the fasciculi, by which means it is divided from the adjacent muscles.

Throughout the cellular texture of muscles run an infinite number of vessels, almost of all classes, and nerves, which expand and are lost in it; the smaller vessels exhale a vapour into the thinner cellular substance, while the oily particles that form the fat are transfused into the thicker: those serve to keep the muscular fibres supple and moist, so as to facilitate
their

their action, and are re-absorbed and taken back into the circulation.

The general division of most muscles is, into their belly, which is the middle and fleshy part, and extremities, or origin and insertion; the origin is often fleshy, or partly fleshy, and partly tendinous; while the insertion, for the most part, particularly into bones, degenerates into fine close compacted fibres, of a silver colour, with more or less cellular membrane, termed a tendon, when round, but when expanded an aponeurosis. Those muscles, which are not inserted into bones, as sphincters, muscular membranes, &c. have, in general, no tendons. On casting our eye over the muscular system, we find an aponeurotic expansion of proportional strength extended over the greater number of muscles, and ligamentous slips, binding down the tendons, with sacculi mucosi interposed between them, to facilitate their motion.

The action of a muscle consists in the contraction of its middle and fleshy fibres, which draws both its extremities towards its belly; but the insertion is, in general, the most or only moveable one; by this means they move the bones: this contraction renders each muscle more or less broad, short, hard, extended, and

and pale throughout its circumference. Those aponeurotic and ligamentous expansions limit and confine this extension of the muscles, and corroborate their action.

It would be foreign to our present purpose to recapitulate the many different theories of muscular motion; we shall only observe, that all muscular fibres are endowed with a principle of contraction and irritability, which is excited to stronger efforts by the application of any stimulus; we find some parts possessed of this principle, some hours even after death: but there seems to be two things essentially necessary to muscular motion. First, a free influx of nervous fluid through the respective nerves of each muscle. The other depends on the circulation in the arterial system; however a defect in this is not, in general, immediately followed by the loss of muscular motion, but we find it succeed when any of the larger arteries are divided &c. if the limb does not fall into mortification, a withering or atrophy of it succeeds, the integrity of the muscles is spoiled, and their action either lost or much impaired. By the muscles variously co-operating and opposing each other, are performed all our voluntary and involuntary motions.

THE

THE VASCULAR SYSTEM.

The animal fluids are circulated throughout the body by the arteries, capillaries, and veins. The general arterial circulation arises from the left and right ventricles of the heart; the first, by means of the aorta and its various branches, distributes the blood through the different parts of the body; the second, by that of the pulmonary artery, &c. is destined to fulfil the same purpose through the lungs. The veins arise from the termination of the arteries, and encrease as they advance towards the heart, where they terminate in the left and right auricles by large venal trunks. The figure of arteries and veins is nearly cylindrical, and their diameters encrease or decrease in proportion to the distance from the heart. The coats of the arteries are, first, cellular, through which run small blood-vessels; the second are fibres, not really muscular, forming imperfect circles in the larger arteries, connected by some cellular membrane; the third seems cuticular and finely polished. The coats of the veins, being fine thin membranes, are not easily divisible, except in the larger; we find but few
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muscular-like fibres to be discerned, but, notwithstanding they have a necessary degree of firmness: the veins are in general larger than their corresponding arteries, and are furnished with valves. Those vessels are generally more or less elastic, and endowed with a contractile power, independent of that elasticity which adapts the vessels to the fluids.

Through the interstices of the fibres and membranes of the blood-vessels, the thinner or more watry parts of the blood transude, or from the ends of exhalent arteries, or through the pores on the sides of the vessels, whether organized, or otherwise, into the cellular membrane and different cavities; this fine lymph is absorbed by small pellucid tubes, called lymphatics, in figure cylindrical, and joint-like from their numerous valves. They arise from different cavities, and generally traverse the lymphatic glands, and discharge themselves into the thoracic duct; which tube arises near the diaphragm, and opens by a valve into the angle between the jugular and subclavian veins of the left side; but some lymphatics terminate in veins, &c.

The secretories and excretories are those different series of vessels belonging to certain organs, adapted to strain off, and transmit from the general mass, certain humours.

N E R V O U S S Y S T E M.

The brain is a soft, inert, insensible mass, filling the cranium, externally of a greyish, or ash colour, internally white; an infinite number of blood-vessels traverse it. The arteries, on entering the cranium, are divested of their thick, strong, elastic coats, and anastomose in general; and the smaller veins enter sooner into a large trunk, whose sides are of a firmer texture. From the white, or medullary part of the brain, masses of fibres arise, which go to every part of the body; these are called nerves. There is a continuation of the brain down the cavity of the spine, named spinal marrow; and here the medullary part is external, while the cineritious occupies the middle. The brain and spinal marrow are covered by firm membranes, viz. the dura and pia mater.

The nerves proceed from the brain in trunks, and are variously ramified as they pass to the different parts of the body. If we closely examine them, we find each trunk but a bundle of nervous filaments, which only separate as they branch, and often meet and join, forming round, reddish, glandular-like masses, called ganglyons, and branch out again; those various

rious branches seem at last to degenerate into a kind of, what may with propriety be called, nervous mucus ; in which Haller, under the name of gelatinous mucus, placed the principle of irritability.

CELLULAR SYSTEM.

The muscular fibres, the vascular and nervous system, are united by this fibrous laminated substance ; it is the medium of connection between all the different parts that compose the body ; in its cavities is deposited lymph, or oil, and it is every where interwoven with capillary vessels and nervous filaments : there subsists throughout this extensive spongy web a free communication of vessels. When we consider what a great part of the body may be reduced into cellular membrane, we may judge its importance in the animal oeconomy.

THE FLUIDS.

The blood consists of, 1. serum ; 2. coagulable lymph ; 3. crassamentum ; 4. superfluous water ; 5. extraneous substances introduced.

Those are so diffused and mechanically mixed through each other, that the blood, as
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it flows in bleeding, seems an homogeneous fluid.

Those are the different parts that give sensibility, mobility, and irritability, and animate the body ; the effect produced by their united operations in the vascular system is the circulation.

The heart is a muscle possessed of a more eminent degree of irritability than any other muscle ; as the blood returns by the two large veins into the auricle, which contracts during the relaxation of the ventricle, by which this last is filled ; which stimulates its muscular fibres to contraction, by which the blood is impelled into the aorta ; a valve, at the opening of the auricle into the ventricle, hinders the blood from returning into the first. On the relaxation of the ventricle it receives a fresh quantity of blood from the auricle ; the valve at the opening of the aorta, hinders the blood to return from it into the ventricle. Those alternate motions of the heart have been thought to produce an equal and uniform circulation throughout the body ; but this cannot be admitted, except in the large vessels.

The contraction of the left ventricle impels the blood into the aorta ; immediately the artery

tery enters into contractions, and forwards the circulation. Now if we consider what an infinity of vessels arise from the aorta, its ramifications, &c. which are dispersed throughout the body and cellular system, which seem but a net-work of vessels running in all directions, and anastomosing before the blood begins to be returned by the veins, into the cava and right auricle, we may easily see how impossible it would be for the powers of the heart to circulate the fluids through such an infinity of vessels.

The principle of motion, in all our solids, is irritability, derived from the influence of the nervous system; from which circumstance we may consider the whole arterial system as endowed with a living or moving principle, liable to be excited by certain stimuli, independent of the heart. We have seen the blood driven by the contraction, which it excites in the left ventricle of the heart, into the aorta, which, in its turn, is excited to contract, and so propel it through the arterial system into the veins, which ending in the two vena cavae, open into the right auricle, which discharges the blood into its respective ventricle, which, contracting, drives it into the pulmonary

nary artery, which having, by its ramification, made the circuit of the lungs, the blood is returned by the pulmonary veins to the left auricle, so into the left ventricle, to begin again the circulation. Now, although this is the general tenor of circulation in the large arterial system, yet we must exempt the capillaries and those in the cellular system.

Those gentlemen * who have examined the course of the circulation, in the capillaries of living animals, have seen the fluids in them take different directions, and, if obstructed in one course, pass into vessels of communication †. The circulation in them may be variously determined to any point by irritation.

The capillaries connected by cellular membrane, form a general net-work of vessels, and seem to constitute or enter the greater part of the body, and are endowed with an oscillatory or contractile power, which circulates the fluids through them according to the different exigences of the animal œconomy. Part of the fluids, in this kind of vascular tex-

* Vide Senac. *Traité du Cœur*. Sauvage *Nosolog. Method.* Whytt, on the Motion of the Fluids in the small Vessels.

† Vide Note II.

ture *, are taken up by the veins from time to time, and reconveyed into the general circulation, and proportionably renewed by some capital arterial trunks; but still the greater part of our fluids are circulating through the cellular membrane, not obedient to the general laws of circulation independent of the influence of the heart, and driven in all directions, which are liable to be changed by adventitious causes, often contrary and superior to the general laws of circulation; of which we shall find many proofs in treating of inflammations.

* Vide Bordeu, Recherches sur le Tissu muqueux ou cellulaire.

SECT.

S E C T. II.

The General Proximate Cause of External Inflammations; their Symptoms, Distinctions, Prognostics, and Method of Treatment.

THE general proximate cause of inflammation has so far engaged the attention of physicians, as to give rise to a variety of different theories, many of them really more curious than interesting. The ancients, whose anatomical knowledge was extremely rude and limited, were but ill calculated to investigate the cause of a disease, which depends on a derangement in the circulatory system. The medical writers of this century, possessing the advantages, which anatomy and experimental physics afford in researches of this kind, have eminently contributed to simplify and illustrate the doctrine of the present disease.

For many years after the celebrated Boerhaave and Hoffman's time, inflammation was supposed to proceed from an obstruction in the capillary vessels, formed by their diameters being lessened by spasmodic constriction,

or otherwise ; or from a morbid degree of tenacity in the circulating fluids, disproportionably encreasing the size of the globules to the capacity of the vessels, through which it was designed they should freely pass, joined to an increased velocity of the blood determined to the part obstructed. From these principles the celebrated Van Swieten concludes, that no inflammation can be conceived without an obstruction also attending.

Later writers* have, for the most part, rejected this theory, and endeavour to prove, that simple obstruction will never produce an inflammation ; that it may depend on an opposite cause ; that there is a freer circulation in inflamed parts, and the vessels more distensible in them, than in a natural state.

I will not presume to enter into a discussion of the various opinions, of those learned and ingenious gentlemen relative to this subject, but, referring the curious to their several works, proceed to describe those inflammations that more particularly fall under the surgeon's care.

* In particular, vide Whytt, on the Motion of the Fluids in the small Vessels ; and vol. I. of Sauvage's *Nolog. Method.*

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When any part, upon the surface of the body, becomes preternaturally enlarged, unusually red, hot, tense and painful, it is said to be inflamed. If the part is elevated into a tumour, it is called a phlegmon; but where the inflammation is more extended, not circumscribed, of a yellowish red colour, and but little raised above the skin, it is termed an erisipelas. The more general and constant seat of this disease, is the cellular and adipous membrane*.

Inflammations may be distinguished into such as are simple, where the symptoms that appear are confined to the parts affected, unattended with any considerable disturbance in the general system; and into such as are accompanied with shiverings, fever, and various morbid affections of the nervous system.

The late ingenious Dr. Whytt's Enquiry, into the Causes which promote the Circulation of the Fluids in the Small Vessels, has contributed to throw great light on the proximate cause of inflammation, by clearly demonstrating the insufficiency of the propelling force of the heart, and larger arteries, to circulate the fluids through the smaller ones.

* Vide Note III.

We are necessarily led to consider the capillary system of vessels as endowed with an irritable principle, which the fluids excite to small alternate contractions or oscillations, upon which the circulation through them depends. This oscillatory motion we find prodigiously increased in any sensible part, by the application of stimulant substances, frequently without the action of the heart, or general arterial system being perceptibly increased.

A few general reflections, on the effects produced by the application of stimulant substances to any sensible part of the body, will tend to set the doctrine of inflammation in a clearer point of view, and shew how far we may consider obstruction as a cause.

The more evident effects of stimuli applied to irritable parts of the body are either, an immediate contraction or convulsion of the parts affected; an increased secretion of humours; or, by exciting the surrounding small series of vessels to quicker oscillations, to determine the fluids, contrary to the general laws of circulation, with an increased velocity to rush as it were from a circumference to a center, that is to the point irritated, and form an inflammatory tumour; which effect will exist as long

long as the parts remain irritable, or the matter irritating.

Here it evidently appears, that an inflammation may be, and generally is, formed independent of any previous obstruction; and experience will strongly incline us to believe, that obstructed parts may, and in fact do, remain for many years unaccompanied by any inflammatory symptom, instances of which we have in schirrhuses, until irritated by causes either external or internal: the irritation being calmed, the symptoms disappear, and leave the part as it was before. Recent wounds, if not considerable, having their lips immediately approximated and defended from the air, often heal without any inflammation or supuration intervening; the contrary of which will happen if exposed.

From the general anastomosis throughout the capillary system, it is but reasonable to imagine that, although a number of them may be obstructed, the fluids, far from urging against the obstructed vessels, distending their sides a tergo, would make their way through the various vessels of communication*, where

* Vide Sauvage's Nosol. Method. vol. I.

no resistance opposes their circulation. We have a strong proof of this happening in amputated limbs, the first days; for the succeeding inflammation cannot, with any degree of propriety, be imputed rather to obstruction, which took place immediately on the operation, than to the effects of any succeeding irritation.

However, although obstruction be not a principal cause of inflammation, it generally is an effect, and often an occasional one, from the fluids spontaneously degenerating, becoming acrid, distending and irritating the sides of the vessels. I presume it will appear from this, that the principal cause of inflammation is to be found in irritation, and that so far from requiring an increased force of the heart and velocity of the general circulation, it is often formed independent of either, those general symptoms of inflammation being secondary, and seldom primary; it otherwise would be impossible to conceive the manner in which a tumour is formed, immediately on the irritation of a sensible part, the action of the larger arteries being not at all quickened, and making
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an allowance for the slow circulation through the capillaries *.

From this we may infer, with every degree of propriety, that all inflammatory tumours are formed by an encreased contractility in the surrounding small vessels, propelling their fluids to the point irritated, independently of the heart and larger arteries. We have a farther proof of this in the manner in which inflammations terminate.

Extraneous substances introduced into the body, while resting there, are attended by inflammation; but on their extraction, except some considerable parts are wounded, the inflammation generally subsides without any farther trouble: if those extraneous substances are left unextracted, another event takes place; to the inflammation succeeds suppuration, which takes off the sensibility of the part affected, and detaches the irritating matter so as to be cast out. We find, when irritating substances are taken into the stomach, or first passages, either an immediate convulsion takes place, and the matter is thrown up, or an increased secretion of humours sheathes the parts

* Vide Fabre's *Essais sur differens Points de Physiologie*, p. 45. Bordeu de l'*Inflammation*, p. 97.

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from being irritated, and obtunds the irritating quality of the matter so taken in, so as to make it pass out of the body, without occasioning more commotion than is necessary to its expulsion. Nature and art both contribute to produce this effect.

The curative indications are calculated to obviate the effects of irritation. Repercussives, emollients, bleeding, &c. have all their good effects; the first, act, by bracing the vessels, and so opposing the rapid influx of the humours; the second, by taking off the effects of tension; the third, by lessening the quantity of blood in the general system, diminishing the nervous influence on the part affected, and rendering it, of consequence, less irritable. Smart purging produces good effects, by turning the oscillatory motion towards another part.

To what a monstrous size do the extremities get, in two or three days, after wounds of the tendons, ligaments, or articular membranes. We cannot impute this to obstruction, for that event took place the first day: the puncture of a tendon, it's half division, shew the same phenomenon. It may be thought that a spasmodic constriction of the aponeurosis of the muscles, and other membranous parts, succeeds, which
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by girding, as it were, the veins, choaks up the circulation; and they who are of this opinion shew that, by freely dividing them, we make the tension cease.

That incisions in those cases often succeed, no practitioner will deny, in as much as they obviate some of the effects of inflammation, without taking the cause away, and give exit to putrid serosity, &c. But we frequently see that, notwithstanding all those assistances, a gangrene will seize the limb; an event which would not take place, if the cause of the inflammation were removed.

I have often observed, that parts which had suffered considerable violence, have been thrown into a kind of torpor, or insensibility, which secures them the first days from any considerable degree of inflammation; a circumstance which often surprises us after with the most alarming symptoms.

We will now consider the symptoms of inflammation singly; and first, the tumour.

We have already seen, that irritating any part of the body to a certain degree, will excite the surrounding capillary vessels into quick contractions, so as to impel the fluids with rapidity to the point irritated; and a tumour will succeed
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proportion to the irritation, and irritability of the part affected, accompanied with the following symptoms; first, heat; as the solids and fluids of the human body are endowed with the principle of heat, like other bodies, liable to be encreased by various causes; and in this case, from the attrition and collision that take place between the solids and fluids, this principle will be developed, its activity encreased, and that in proportion to the rapidity of the oscillatory motion.

As heat expands and rarifies the fluids, the vessels already overcharged must, in consequence, be considerably distended, which will encrease the irritation and influx of humours to the inflamed part; the thinner fluids now will exsude, from the pores and extremities of the vessels, into the cellular membrane; while the more gross will be forced and impacted into the series of small vessels disproportioned to receive them, and which contain no coloured fluid in a natural state. From hence follows the redness, tension, pain, and general confusion in the circulation of the part affected.

The pulsation is that dilatation of the vessels which is sensible to the touch; here we must have it encreased in proportion to the quantity and velocity of the fluids driven to the point
irritated;

irritated; and as now the circulation is, as it were, choaked up in the inflamed part, the nervous system will be affected, and general symptoms take place, more or less acute, in proportion to the different texture, tension, and importance of the inflamed part. Shiverings, anxiety, restlessness, the sure precursors of fever, will be succeeded by general heat, thirst, hard quick pulse, &c. which symptoms will continue until the inflammation terminates in health, another disease, or death.

P R O G N O S T I C

Is founded on a previous knowledge of the intenseness of the cause producing the inflammation, the importance of the part affected, habit of body, and sex of the patient. Thus inflammations succeeding to wounds, fractures, luxations, operations, except the symptoms run high, do not alarm us, as being no more than what ought to be expected. Those proceeding from extraneous substances, subside, in general, on their being extracted; unless the wound is considerable, or the patient of an irritable bad habit of body. But we ever find that, after operations or injuries
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done on tense, membranous, or ligamentous parts, inflammations run higher, attended with more or less disturbance in the general circulatory and nervous system.

Inflammations that arise from internal causes, and fix on the external parts, require particular attention, as to the method of treating them, being often an effort of nature to throw out something hurtful to her, as we see in some *eripelases*, and in *poxed*, *scrophulous*, and *gouty* patients, where the repelling the inflammations would be of the worst consequence. Those that precede or accompany critical transmutations, should, in general, be encouraged to suppurate. Those that seize dropical habits, particularly the swelled legs that sometimes attend an *acites*, will often gangrene, notwithstanding all our endeavours.

C U R E.

The most desirable termination, in general, of inflammation is resolution, by which the integrity of the part affected is preserved; this is brought about by removing the cause of irritation, taking off the irritability of the part, moderating the intenseness of the oscillatory motion, and impetus of the blood; so as that
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the exudation in the adjoining cellular texture may be absorbed, or thrown out on the surface, the vessels be unloaded, a free circulation take place, and the state of the part become the same as before. This event will much depend on our being called in early; otherwise, very often, it will not be in our power to prevent a suppuration, or even a gangrene, from succeeding.

The first view we should have, in fractures and luxations, is their reduction; but if the inflammation dependent on fractures, with splinters irritating the neighbouring parts, runs very high, the reduction, in general, will be impracticable, and the attempt of the worst consequence: loose splinters may certainly be removed with advantage, but to think of extending an inflamed limb, no prudent surgeon will attempt it. Here our whole view should center in obviating the effects of irritation, by lessening the irritability of the part, and the general inflammatory symptoms that may reasonably be expected to supervene. To this effect bleeding will conduce, which must be repeated according to the degree of fever, pain, and tension; the bowels must be kept free and open with the neutral salts; recourse

course must be had to plentiful dilution and low diet, saline juleps, topical applications, such as emollient pultices and fomentations; which will contribute to lessen the tension, with a prudent use of an opiate at night to procure rest.

The same conduct we must pursue, with regard to luxations and the extraction of extraneous substances; for we seldom can reduce, or with safety attempt the reduction of a luxation, when there is an high degree of inflammation attending, and must necessarily wait, until, by the above methods, those symptoms are removed; and for extraneous substances they are more safely extracted after the suppuration is formed, except we are called in before the inflammation is far advanced.

Inflammations succeeding operations are not to be dreaded but when they run too high; to prevent which, all strict bandages should be carefully avoided, quietness enjoined, and a relaxed favourable position of the part, with such antiphlogistics as may be indicated.

In an *erisipelas*, if but slight, and not attended with any great disturbance in the general system, by fomenting the part with a
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decoction of camomil and elder flowers, to a quart of which is added an ounce of Goulard's extract of lead, and giving some cooling purgatives, in a few days it generally subsides; but if it is preceded by a smart rigor, and accompanied with fever, &c. it requires a more serious attention.

If the erisipelas is much extended, of the tense inflammatory kind, the patient's pulse hard, full, and quick, bathing the feet in warm water, and bleeding in the foot, will be adviseable, if the erisipelas occupies the upper extremities or head, otherwise in the arm. This operation may be repeated, if we find the inflammatory symptoms do not subside. Purging at proper intervals, with any of the neutral salts, will be also necessary; an antiphlogistic regimen, with copious dilution; the patient may take every two hours two spoonfuls of a saline julep, to which two or three grains of tartar emetic is added; a relaxed perspirable surface being of the utmost service in this complaint.

But, in general, the erisipelas attacks more frequently those patients who are of bilious constitutions; and although the feverish symptoms run high, often attended with delirium, the pulse

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is seldom strong or full, nor will the patient bear bleeding with any advantage. Here our attention must be directed to keeping up a free evacuation by the bowels, and such medicines as will tend to promote a gentle and constant diaphoresis, such as the saline julep with tartar emetic, or spirit Mindereri. The local applications may consist of fomentations, as already mentioned, and a pultice of camomil and elder flowers, boiled up with crumbs of bread in the liquor of the stupe.

If the erisipelas should suppurate, or tend to gangrene, the bark, with a suitable regimen, must be administered in such quantities as the exigency of the case requires; the fomentations may be continued, and the pultice of oat-meal and porter substituted. In the gangrenous erisipelas, when a suppuration is established, the curative treatment has nothing particular in it. In those cases, if at any time the head or breast seem affected by a repulsion of the erisipelatous matter, blisters or sinapisms must be immediately applied.

Inflammations proceeding from internal causes, more particularly such as appear critical, should be left to nature; and art can be only serviceable in keeping a proper ballance,

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so as to check the violence of the symptoms, without too much lowering the vis vitæ, and to promote suppuration in general *; but in bad habits of body, particular attention should be had to the prevailing acrimony.

As to those large swelled legs, which attend dropical patients, when they inflame, an event we often see take place in the latter period of this disease, particularly in hard drinkers, we can expect but little success from any application. The best application I know in those cases, is oat-meal boiled up to a pultice in porter: fomentations may be applied; but we should carefully avoid, in this state, making any scarifications in the legs, by way of unloading the general cellular system; for we generally find, that even small punctures with a lancet, instead of answering our intention, add to the irritation, and precipitate the parts into a gangrenous state †.

If our endeavours to effect a resolution do not succeed, and the inflammatory symptoms not only continue but encrease, we must direct our attention to the next more favourable change, which will be into suppuration.

* Vide Note iv.

† Vide Note v.

S E C T. III.

Of Suppuration.

THE inflammation being now at the highest, and the different series of vessels loaded with fluids, still urging to the point irritated, the heat developed by the attrition between the solids and fluids, will, by rarifying the latter, distend the former, and dilate the exhalent vessels; by which means there will be an exudation of serous humours into the cellular and adipous interstices, whose texture in part will gradually be dissolved, the coats of the small vessels slough off, and the different series of humours, being broke down and fermenting, will form, by a new combination, a white, opaque, unctuous liquor, without any offensive smell, termed pus. This matter, in circumscribed tumours, will occupy the centre; but, in extended inflammations, we often find many points of suppuration, which, running into one another, form large cavities and different sinuses in the cellular and adipous membrane.

After

After this change takes place in the inflamed part, we generally find a considerable abatement of the redness, heat, and pain. At this period, irregular shiverings, succeeded by transitory feverish fits, will sometimes invade the patient, particularly if the quantity of matter be any way considerable, from the thinner part of the pus being taken up by the absorbing vessels, and carried back into the circulation. But in collections of matter that are inclosed in a cyst, or surrounded with an inflammatory hardness, this absorption of matter will seldom or never take place.

If after the suppuration is completely formed in the tumour, the event is left to nature, the following changes generally happen: instead of the pain formerly in the part, the patient feels a weight in it: if the collection be not deeply situated, the tumour will become more and more pointed, yellow, and the fluctuation will be rendered perceptible; at last the central point becomes bluish, and bursts, by which an exit is given to the confined matter. A purulent discharge will now succeed, and continue in proportion to the enlargement of the surrounding parts; but this subsiding, of course it lessens, the lips of the aperture come into

contact with each other, and, by means of a nutritious gluten, the rupture in the skin will be cicatrized; but if there has been a great destruction of the cellular and adipous membrane, a fistula will often remain.

P R O G N O S T I C

Will depend on a just idea of the cause of the preceding inflammation, the importance and situation of the part affected, and the general habit of body of the patient.

We have already seen that, after our endeavours to bring the inflammation to a resolution prove fruitless, the next more desirable change was suppuration, which, when mild, and the patient of a tolerable habit of body, seldom proves dangerous; for by this process the irritation is subdued; as in splinters, or extraneous substances, the pus dissolves the cellular texture, by which means they become easy to remove, and the vessels have liberty to disburthen themselves of their distending fluids. The tension and pain will consequently subside, and a favourable termination of the disease succeed.

But where the inflammatory symptoms run high, the inflammation of a large extent, and the suppuration formed in different points, the

patient of a dropfical, cacoehymic, fcorbutic, fcerophulous, or poxed habit of body, thofe are alarming circumftances ; for the matter, far from being thick, unctuous, and mild, will, in general, be thin, of an offensive fmell, and acrimonious ; which will deftroy the cellular and adipous membrane, and, by vellivating the coats of the veffels, will constantly keep up an increafed ofcillatory motion in them ; and in confequence there will be a thin fanies, or bloody difcharge, accompanied by more or lefs degree of inflammation and erithifm in the furrounding parts : in a little time the aponeurofis of the mufcles, capfules of the tendons, perioftium, and bones themfelves, may belaidbare. In thofe cafes, irregular fhiverings, heftic fever, colliquative fweats, diarrhea, all proceeding from the abforption of this thin acrid matter, are constant occurrences ; or a tranflation of it to fome of the more important parts frequently clofe the fcene.

Abfcefles formed about the articulations, or near tendinous, aponeurotic, or tenfe, membranous parts, or about the rectum *, perineum, fcrotum,

* As Van Swieten obferves, there is no part of the body in which there are worfe fiftulæ and finuffes formed, by
D 4 matter

scrotum, internal canthus of the eye, require our more particular attention and guarded prognostic, and that in proportion as the inflammation occupies a more or less extent; as likewise do critical abscesses, such as succeed at the end of fevers, &c.

T R E A T M E N T.

The treatment we will consider under three different points of view. First, when the matter is forming. Second, when formed. Third, the manner of letting it out, and treatment after.

When the inflammation not only exists, notwithstanding the method proposed for its resolution, and the heat, pain, redness, and tension, are increased, we must lay aside the resolute treatment, and co-operate with nature in bringing the disease to a laudable suppuration. As the irritation and heat are the principal agents in producing this effect, the surgeon's intention should be confined to mode-

matter being too long confined, than about the intestinum rectum; for as the grossest fæces must pass through that intestine to be discharged, it was necessary it should be capable of an easy dilatation every way, and therefore there is a large quantity of soft fat placed all round this intestine, into which the confined matter, which has been too long retained in an abscess, may penetrate, and form sinusses.

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rating the general symptoms that will necessarily ensue. Emollient pultices should be applied; a variety of forms which we meet with in most practical treatises, but few superior to the flax-seed, or bread and milk pultice with oil; these should be shifted morning and evening, or oftener, as occasion may require. A paregoric at night will both contribute to the ease of the patient, and, in some degree, may promote suppuration. Evacuations are prohibited, except some extraordinary degree of fever should counter-indicate it; but an emollient clyster will be necessary to keep the bowels free.

In this method we must persist until we find the tumour becomes soft, the redness abate, or turn towards yellow, accompanied with a sensible fluctuation, as we find when the matter is completely formed. The time which this will take, to produce this effect, will depend on the degree of inflammation, part affected, and habit of body of the patient; for we see, in some of inert relaxed solids, the formation of matter is very slow; while in those of an opposite temperament, it is as surprisingly quick.

The next consideration is how to give exit to the pus. In a circumscribed tumour, unattended

tended with any particular symptoms, surgeons generally employ either the knife or caustic : the first is safe, easy, and expeditious ; the second is liable to some objections : when the tumour is soft, and the fluctuation palpable, we may put in practice either of these methods, but not before. It is much better in those cases to be rather late than too early ; for if we open the tumour before the surrounding hardness is dissolved, we not only excite more pain, and risque the injuring the subjacent parts, as the matter does not elevate the skin, but let out what, when mild, is the best dissolvent, viz. the matter ; and, in consequence, will have a tedious ill-conditioned suppuration. But if we postpone the opening of the tumour too long, the matter will become thin, acrid, and may insinuate itself into the surrounding parts, producing sinuosities and fistulous ulcers ; the thinner part of it will be absorbed, which may be productive of a purulent cacochymy ; and the top of the tumour will become so thin and attenuated, and often gangrened, that we shall be obliged to remove it ; which will expose a larger surface of sore, and be followed by an unsightly cicatrix.

If we prefer the knife, the operation will consist in taking the tumour between the fingers and thumb of the left hand, pressing the matter to the surface, and then entering the bistory, or abscess-lancet, into the softest and most prominent part of the tumour, and continue the incision, so as to give sufficient exit to the matter, and admit the easy application of dressing. If the tumour is of any considerable extent, and the skin much extenuated, the incision will succeed best, in general, if it is carried from one extremity to the other; except deformity would be the consequence, as in the face or neck, where a simple puncture with a lancet may be first tried, as we may, if necessary, enlarge it at any time.

The practice adopted by some surgeons, where there is a large cavity, and the lips any way thin, immediately to take them off with the hollow scissars, is certainly highly imprudent; notwithstanding their alledging that, by their subsiding, they would invert; in consequence, inflame, impede the suppuration, and easy application of dressings. But those effects are easily obviated by a light, easy manner of dressing, so as to support those lips until, by the succeeding discharge, the distension of the surrounding

rounding parts subfides, after which the cavity will disappear.

If we should find, when called in, the cap of the tumour bluish and mortified, or the skin quite extenuated, there will be a necessity of removing it; which will be best executed by the hollow scissars. The objection, that they contuse in cutting, and give more pain, will not lie against them in this case, as the parts are very little sensible. After the removal of the piece we find the matter thick, from having the finer parts taken up, or exsudated, and the bottom of the abscess, like a honey-comb, intersected with some remaining parts of the cellular membrane, formed into what is called bridles; these, the surgeons, introducing their fingers, break down; a practice which, in general, might be omitted, as it creates pain, and the subsequent suppuration casting all those kindly off.

The operation performed, soft, flat dossils of lint, dry, or spread with some soft digestive, are applied, and renewed occasionally. Those dossils, which are often dipped in warm linament *è* gum. elemi, soon become hard, and, of consequence, painful and unfit, and are better omitted. A plaster over all, and compress,
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and slip of flannel to keep the dressing on, will be sufficient.

If it be thought proper to apply the caustic*, the manner of doing it is, first, to guard, with sticking-plaster, the surrounding parts; then lay the caustic something less than the breadth of the intended opening, as it will run more or less; let it lie on so long as that it will have time to throw the part into an eschar, which will be in proportion to the strength of the caustic. After it is taken off, an aperture with a lancet, to let out the matter may be necessary. The eschar may separate in two, three, or four days; but if the flax-seed pultice is applied over the dressing, it will expedite it. The remaining treatment will not be dissimilar to an abscess opened with the knife.

The cases in which caustics are applied, with superior advantages to the knife, are, when the matter is formed by a critical deposition; and we would willingly prolong the subsequent discharge, in order to leave nature at liberty to throw off all offensive matter. Such are the generality of indolent tumours, which have

* The lapis infernalis, beat up with a proportionable quantity of soap, and a little opium, I have always found to be a very eligible caustic.

had little degree of inflammation, and in which matter formed very slowly, the teguments thick, and the tumour large; and in some buboes and scrophulous tumours.

In all those collections of matter, that are the consequence of fractures, or extraneous substances, the preference must be given to the knife; and, in general, the freer the incisions are made, the greater facility there will be in the extraction of splinters, or extraneous substances, and the easy application of dressings.

But in those critical translations, that are the consequence of fevers, &c. where of a sudden a large quantity of matter is thrown on different parts, as we often see occupying almost the whole side of the buttock; or in those putrid or gangrenous suppurations formed about the margin of the rectum; in all those cases our success will depend on the administration of internals, and not on the largeness of our incisions; for were we to take off the lips in proportion to the cavity, what a large surface of sore would we expose, by the constant irritation of which, and consequent discharge, the miserable patient would be soon exhausted. The leaving a fistula, from the smallness of the incision, will be no objection to this method of
treat-

treatment; for the discharge will not be so great, nor the patient racked with continual pain, particularly at every dressing; and when, by the use of the bark, country air, &c. sufficient strength is acquired, any remaining cavity may be easily divided.

In all those cases we can expect little relief, if the bark, spir. vitriol. ten. and country air, have no effect; for if, notwithstanding a sufficient exit has been given to the discharge, it increases, becomes thin and sanious, the patient melts into colliquative sweats, attended with swelling of the legs, hectic pulse, and irregular shiverings, a diarrhea may be soon expected, which will terminate in death *.

The treatment of venereal buboes, and abscesses formed in the breasts of lying-in women, come next into consideration.

Buboes are those glandular abscesses that have their seat in the groin, and appear after a suppressed gonorrhea, chancre, or impure coition. From the two first causes we often see buboes arise, and, when encouraged to suppurate, terminate favourably the disease; but when, after impure coition, the first symptom of the infection is a bubo, the disease frequently

* Vide Note vi.

proves

proves obstinate, from the general mass of humours being infected. In either cases, as they may be looked on as a critical effort of nature to throw out the virus, they should, except some particular circumstance counter-indicate, be encourage to suppurate; nor should the authority of the celebrated La Peyronie induce us to act contrary, who put back a bubo that had matter formed in it, on the presumption that, as mercury acts as a specific, a discharge becomes unnecessary; for, although all this should be granted, the throwing off some part of the virus by discharge, will never impede the action of mercury as a specific; on the contrary, there will be less for it to do: and if we but consider what bad effects are produced by the absorption of matter into the general circulation, although not loaded with the venereal virus, this practice must be rejected. The most inveterate poxes are seen to succeed suppressed buboes, and we have good reason to believe that many fall victims to this practice.

Buboes should never, in general, be opened until the suppuration is completely formed, and all hardness dissolved; for it is judiciously observed by Van Swieten, that he has sometimes seen venereal buboes, which, being opened
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too soon for fear of a confirmed lues, have occasioned the greatest difficulties, and often proved incurable for several months; the surgeons being obliged to consume them by caustics, when the same thing might have been prevented with certainty, in a few days time, by letting the matter continue longer confined in the parts. The time that buboes take to their complete suppuration, will be in proportion to the degree of inflammation attending.

In the beginning of the tumour it will be best to desist from any local application, until we find the skin change, and the tumour and inflammation advance; then the bread and milk pultice with flax-seed, or the gum plaster, will contribute to forward the suppuration until it bursts, which is a much more eligible event than to have recourse to incision. However, if the integuments are thick, though the suppuration be formed, we must have recourse to the lancet; and a single aperture will, in general be sufficient. The practice of taking away an oval piece of the top of the tumour, and by that means exposing a large surface of sore in a naturally irritable part, is productive, sometimes, of a large ill-conditioned, or even cancerous ulcer, attended with continual pain,

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and the worst consequences *. This method should never take place but where the surface of the bubo is gangrened.

The application of a caustic to old, indolent, half-suppurated buboes, is better, in general, dispensed with ; for they seldom digest well, and frequently are attended with disagreeable effects.

Abscesses formed in the breasts of lying-in women ought, in general, to be left to burst of themselves ; which they will do by the application of the flax-seed pultice, &c. By this means any disagreeable hardness in the breast is generally prevented.

The remaining unfavourable termination of inflammation presents itself next, which is that into a gangrene.

* Vide Note VII.



SECT.

S E C T. IV.

Of the Gangrene.

IF the methods generally employed, and already proposed, to bring the inflammation either to a resolution or suppuration, prove ineffectual, and that the violence of the pain, fever, and heat, having increased, while the inflamed part is in the utmost state of tension, there is every reason to expect an immediate gangrene; the actual coming on of which will be perceived, first, from a rupture of the vessels, or their circulatory powers being destroyed, the fluids will either be diffused into the cellular and adipous membrane; or, stagnating, their putrefaction will soon succeed, destroying still farther the tone of the vessels, and spreading the gangrene. The inflamed part now changes from a clear to a dark red, and the cuticle, from the exudation of the putrid serum, will be elevated into blisters.

Secondly, from the lessening of the quantity of stagnant fluids by exudation, and no circulation subsisting in the inflamed part, the ten-

sion will, in some measure, subside; and the pain, which depended on the distraction of the vessels and nervous fibres, must cease, from their texture being broke down.

Thirdly, as the increased heat was owing to the attrition and collision between the solids and fluids, it will be considerably diminished; but the pulse, although it generally sinks, becomes quicker; as the gangrene advances, the part becomes livid, and, by degrees, quite black and cold; a kind of putrid fermentation takes place in the stagnant fluids and broken down solids, which may be frequently observed, particularly in those gangrenes that are the consequence of accidents, as fractures, wounds, &c. by which more or less elastic air is suddenly extricated and sent forth, which makes the limb as tense as a drum, until set free by incision, or the skin's bursting.

The parts now become quite flaccid, and fall into a putrid state of dissolution; the patient has all that anxiety which precedes death, a clammy cold sweat breaks through him, attended with a laborious breathing; and, from the absorption of the putrid serum into the circulation, and falling on the nervous system, he is shook, from time to time, either with rigors

gors or convulsions, or alternately with both, and generally violently delirious, until his strength is quite exhausted.

PROGNOSTIC.

All gangrenes claim our greatest attention; for they are either symptoms of a highly vitiated habit of body, where the fluids strongly tend to putrescency, or the part affected having sustained a great degree of violence.

Those gangrenes that proceed from an internal cause, if not limited to the integuments, and of small extent, are ever to be dreaded; and the more so, if the patient is of a cold, phlegmatic, inert habit of body, or anasarcaous; or if of a dry, thin, acrid, scorbutic disposition, and old. In either case, the disease generally makes a rapid progress, and too frequently terminates in death.

Those gangrenes that seize the extremities of old people, either through a defect of the vis vitæ, or from the vessels having lost their tone, coalescing, or the larger ones becoming ossified or cartilaginous, are generally slow in their progress, and seldom very painful, the mortification being of the dry kind, but prove,

for the most part, mortal ; as do likewise those that come on old ulcers, where the discharge has been suppressed.

Gangrenes that seize fractured limbs, particularly if the fracture is a compound one, and near the articulation, and have come on suddenly, attended with a violent delirium, seldom admit of any relief. Those that succeed gunshot, punctured, or lacerated wounds of tense, membranous or tendinous parts, unexpectedly coming on, are of the most alarming nature. Those from long lying, critical metastases, malignant carbuncles, &c. often yield to a proper method of treatment.

C U R E.

The tendency of an inflammation's terminating in a gangrene, should be strenuously combated by all the possible means already laid down to bring this disease, either to a resolution or suppuration ; but if these do not succeed, and this event takes place, our intention must be directed to promote a separation of the gangrened parts from the living, and to prevent any morbid matter, being absorbed, from affecting the general system.

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In those gangrenous eschars that appear in cold, phlegmatic, or anasarctous patients, whose cellular system is loaded with serosity, and of whose solids the general tone is impaired and weakened, it will be necessary, at due intervals, to promote either the discharges by stool or urine; and after, by the free use of the bark and wine, with a suitable diet, strive to restore to the solids, in some degree, their former tone. The local applications will consist in antiseptic and animating fomentations, to which a proper proportion of vinegar and crude sal ammoniac is added. The dressings may consist of pledgits, covered with linament *è* gum elemi, with a plaster over; or those may be often, with advantage, omitted, and the strong-beer pultice must be constantly applied. In this case we may, by proper scarifications, procure every advantage to the acting of those applications.

Those gangrenes that appear as a black or bluish spot on the inside of the toes, and pass on to the foot, particularly incident to the rich, who indulge their appetites, have been, and are generally, treated externally, with antiseptic fomentations, fermenting cataplasms, strong-beer pultice, and warm dressings, with a liberal

use of the bark, wine, and a generous diet. From considering the progress of the disease, which is most frequently attended with considerable pain, a gentleman* of great experience is induced to think this disease does not proceed from either a defect of the vis vitæ, or ossification of the arteries, and that whatever heats and irritates will increase the disorder. He recommends the application of the flax-seed pultice, soaking the foot and ankle in warm milk; the dressings to consist of the softest and most lenient materials, avoiding all scarifications, incisions, &c. leaving the separation of the mortified parts to the care of nature; but above all, he enforces the giving opium in such quantities, and at such intervals of time, as to procure a cessation of pain; sometimes giving one grain every three hours, taking care, at the same time, to keep the bowels free by clysters, and never less than four grains in twenty-four hours. By this method he has succeeded beyond his expectation†. Experience will warrant our saying, that both methods of treatment will succeed in apparently similar cases. A remission of pain should certainly be procured by means of an opiate; but I believe

* Vide Pott's Works, vol. V.

† Vide Note VIII.

the administration of the bark cannot, in prudence, be dispensed with. As to the external applications, whatever seems to agree best with the parts affected, ought certainly to be preferred, particularly the fermenting cataplasim.

In fractures, all that can be done, if we are not called before the gangrene has actually taken place, is to prevent its progress, and co-operate with nature in the separation of the gangrened part. If this event proceeded from a great violence, or from the contusion and laceration of the parts, by the protrusion of the bones, preceded by a violent degree of inflammation, in this case authors much differ in their method of treatment; some recommend stimulant and antiseptic applications, with scarifications, the administration of the bark, cordials, &c. Others think this method much more likely to promote what it was intended to obviate, and direct nearly an opposite mode of treatment. If the patient is young and sanguine, some advise bleeding; but where a gangrene has already taken place, this will rarely be indicated, although the pulse should be full and strong: scarifications are rejected, on account of their adding to the irritation. But where the inflammatory tension is so high, as that a
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commencing gangrene is actually present, the parts are deprived of that exquisite sensibility that authors imagine; for, on a close examination, we find it is the general symptoms attendant on inflammation that distress the patient, and not any exquisite pain he feels in the limb.

In a compound fracture, attended with great stricture and tension on the part, the fluids partly extravasated through the cellular membrane, or crowded in distended vessels, can any thing bid fairer to remove the stricture, unload the distracted vessels, give free exit to the putrid serum, extravasation, &c. or remove splinters, than freely dilating the wounded parts? after which the strong-beer pultice, fomentations with a proper proportion of vinegar and crude sal ammoniac added, light easy dressing, and a favourable position of the limb, are all we can do by local applications. Where a high degree of inflammatory diathesis prevails in the general system, the bark will not be administered with any advantage, until this subsides; and the neutral, antiphlogistic medicines will have the preference; at the same time taking particular care to keep the bowels free.

As amputation, before a separation, by sup-
pura-

putation, of the gangrenous parts from the sound takes place *, is unanimously and justly condemned; we proceed to those gangrenes that are the consequence of lacerated, punctured, or gun-shot wounds, and can only offer the same general mode of treatment already proposed, leaving it to the surgeon to vary it according as different indications occur : but I must remark, that I have sometimes seen, after compound fractures, and some wounds of tendinous parts, at first not apparently very dangerous, and where no bad habit of body seemed to prevail, nor any extraordinary degree of inflammation, that after two, three, or four days, the patient will be seized with a shivering, succeeded by a fever, violent delirium, and the limb will be completely sphacelated, sometimes in less than twenty-four hours, and the patient will be rapidly taken off; nor is there any time given for the interposition of art †.

Those gangrenes that proceed from long lying, critical metastases, &c. are tedious, and require a liberal use of the bark, with the elixir vitriol. acid. good air, &c. and great attention in point of cleanliness, correcting any pu-

* Vide Note ix.

† Vide Note x.

trid smell, which may be obtained by exposing the part to a fermenting mixture, fumigating it, as it were, with the extricated air. In those gangrenes coming on old ulcers, where the discharge has been suppressed, along with the general method of treatment, sinapisms applied to the feet, or blisters to the legs, thighs, or back, may be of advantage.

The remaining terminations of inflammation are, first, into a schirrhous, or indolent hardness of the part formerly inflamed. Secondly, by an effusion of blood, or an exsudation of a kind of serosity, sometimes purulent, as we find in cavities where any of the viscera have been inflamed, elevating the cuticle into blisters; or by adhesion, which is a frequent consequence of those inflammations which happen to membranous parts. But of those terminations, hardly any, except that into a scirrhous, falls under the surgeon's direction; and this is so rare an occurrence, that we cannot, with any degree of propriety, consider it as one way in which an inflammation may terminate; therefore we will pass on to the consideration of ulcers.

SECT.

S E C T. V.

Of Ulcers.

ALL wounds, abscesses, or other sores, that have resisted, for some time, the general methods of treatment commonly put in practice in such cases, are called ulcers, of which authors have made an unnecessary number of distinctions; but the more important are into, first, scorbutic; secondly, scrophulous; thirdly, venereal; fourthly, carious; fifthly, cancerous; and sixthly, fistulous. There are other ulcers which we cannot impute to the effect of any particular virus; as those which proceed from a general bad habit of body, from the suppression of some habitual evacuation; or from the acrimony of certain discharges, as those that are the consequence of the fluor albus, involuntary discharges of the urine or fæces, &c.

C A U S E S.

The external causes often proceed from the mal-treatment of abscesses, or wounds, by the surgeon's imprudently cramming them with
dossils,

doffils, loaded with warm digestives ; or from the patient's imprudence in point of regimen, and using too much exercise, particularly if the sore be situated in the inferior extremities.

The internal causes are characterized by the general symptoms of the disease, of which they are but an effect ; as in those ulcers surrounded with hard bluish lips, or thin and livid ones, soft, pale funguses, subject to bleed, sprouting up in them ; the patient, at the same time, labouring under some or most of the general symptoms of the scurvy, as violent or livid spots scattered over the surface, loose, putrid, swelled gums, which bleed on the slightest occasion, bloated face, breath offensive, weariness, cold swellings and pain in the extremities, swelled hypochondria, bad digestion, &c. These ulcers may, with great propriety, be termed scorbutic.

Those ulcers that proceed from the aperture of some indolent tumour, digesting ill, and difficult to bring to suppuration, attended with an enlargement of the maxillary, parotid, and axillary glands, big belly in children, sore eyes, and thick lips, particularly the upper, are termed scrophulous.

Can-

Cancerous ulcers are generally preceded by schirrous tumours, which, after bursting, discharge an acrid ichor, eroding the parts it touches; the lips turn out, and are elevated into frightful funguses, which bleed on the least occasion, and often periodically; the ulcer is encircled with varicous veins, and spreads daily, attended with acute pain; the neighbouring glands enlarge and become schirrhous, and sometimes burst into new cancers.

Venereal ulcers are known from the patient's being infected with the disease, and attended with some of the general symptoms, as copper-coloured spots scattered up and down on the surface, particularly under the hair, and about the forehead; chancres on the glans penis, accompanied or preceded by a gonorrhea, ulcerated tonsils, buboes, nocturnal pains in the limbs and head, vertigoes, &c.

Ulcers attended with a caries of the bone, are not difficult to know, particularly if occupying the extremities, as the probe or finger will generally give us every information as to this point; for if we find the bone rough or enlarged, it puts the case out of doubt: those ulcers are generally attended with a gleety, fetid,

fetid, or oily discharge, and pale, soft, ill-conditioned funguses.

Fistulous ulcers, and those that proceed from a general bad habit of body, are obvious; as are also those that depend on the acrimony or suppression of any habitual evacuations.

P R O G N O S T I C

Is drawn from a previous consideration of the importance of the part affected, the age, sex, particular habit of body, and manner of living of the patient. Scorbutic ulcers will be liable to return, after the best method of treatment has been put in practice; as also will such as depend on the suppression of any accustomed evacuation, even should we be tempted to heal them, which is seldom safe to do while the suppression remains. Venereal ulcers are considered but as a symptom of the disease. Scrophulous, carious, and fistulous ulcers are tedious in their treatment; and often exhaust the patient, or induce a very bad habit of body. But the event of that opprobrium chyrurgorum, cancerous ulcers, is most to be dreaded.

C U R E.

C U R E.

The indiscriminate administration of mercurials, in all cases of ulcers, is an exceeding bad practice, although a very common one, and is in no instance productive of worse consequences than in those putrid ulcers, the effect of a scorbutic habit of body, where the healthy crassis of the humours is broke down, and they strongly tend to a state of putrescency. In this case a free, open, dry air, a diet chiefly vegetable, the bark, with the vegetable acids, or the malt infusion, keeping the bowels free by any of the neutral salts, and exposing the sore over fermenting mixtures, avoiding the dressing of it with any hot, acrid digestives, and only applying such as are easy to the patient, are the means proper to be made use of.

If the ulcer does not digest, having foul, callous lips; instead of immediately trying, by local applications, to melt down the callosities, and bring the ulcer to a state of digestion, we should rather wait the effect of internal medicine, regimen, &c. When the sore puts on a better appearance, and the patient's habit of body is mended, those white callous lips may be, from time to time, pared with a bistory,

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and covered with a mercurial plaster, which will expedite the cure. If the ulcer is in the leg, the wearing a laced stocking will contribute much to prevent any return; and often an issue and the cold bath may be ordered, with advantage, to fulfil the same purpose.

Ulcers which are attended with a dry scruff over the body, tetters, blotches, &c. although classed among the scorbutic, rather seem to proceed from some particular species of acrimony; they are generally of the callous, gleety kind, and require a different method of treatment; for mercurials, which in the real scurvy are never indicated, in this case are the best medicines we can administer, and seldom fail of success, if prudently given. Previous to their administration, we should put the patient for some days on a soft, spare, diluting regimen, purging, at proper intervals, with any of the neutral salts; after which any of the following mercurial preparations may be given, along with the decoction of sarsaparilla, Dr. Huxham's *Ethiops antimonialis*, or the mercurial pill, of either a drachm in twelve pills, one or two to be taken every night. Turbith mineral, to the quantity of a grain; or the solution made with corrosive sublimate, sublimed with
double

double its weight of crude sal ammoniac; which is one of the best medicines in all cutaneous foulness I ever yet knew; from one quart to two, or more of the decoction, may be used in twenty-four hours; if the patient is troubled with worms, we may substitute calomel, purging it off with powders of rhubarb, jalap, &c.

The local applications must necessarily vary according to the different appearances of the ulcer; but Goulard's cerate, the mercurial plaster, or any mild digestive, are generally sufficient to fulfill every indication. After the patient is well, he should be purged as in the beginning; issues, if the ulcer were of long continuance, should be opened, and a course of sea-bathing, or the Lucan * Spa, advised.

Scrophulous ulcers, if the patient is under seven, require little besides keeping them clean; bathing in the salt water, and drinking it at proper intervals, pulticing the indurated glands with sea reck. If the discharge is great, and a reabsorption apprehended, a decoction of the

* A cold sulphureous Spa, within four miles of Dublin, pretty similar in its qualities to those of Harrogate in England, and Moffet in Scotland, found to be extremely effectual in cutaneous foulnesses.

bark, country air, goat's whey, may be substituted; as our entire attention should be directed towards correcting the habit of body: the easiest applications to the sores will, in general, prove most beneficial; for as the patient advances towards an adult state, and acquires a firmness of solids, the disease gradually subsides. The greatest care should be taken of those children's diet, prohibiting every thing viscid; as very often an error in this respect induces a scrophulous disposition, as we experience in the children of the poor.

In adults labouring under these ulcers, we can have a greater recourse to medicine. In those patients we often find a chain of scrophulous tumours reaching down the neck to the clavicle, the axillary glands at the same time enlarged; suppurations in some of those sometimes take place; and often the patient is lost by those tumours pressing on and straitening up the œsophagus, so as to prevent his taking any food. Small doses of calomel, or other mercurial alteratives, are generally administered in those cases, purging them off at proper intervals; and even salivation has been tried, but I have always experienced it to be followed

followed by the worst consequences. The success of all mercurials is here very precarious *; for, by the erithism they occasion in the circulatory system, they cause some of those tumours to suppurate much sooner than they otherwise would, and often encrease all the rest: they materially injure the tonus of the chylopoetic viscera, and tend to relax the general system. If the disease be not far advanced, a prudent trial may be made with some of the milder mercurials, taking care not to persist too long in the use of them; but I have seen the best effects from the extract of hemlock, given in larger quantities than usually prescribed, and continued for a longer time, joined with a decoction of the bark, if the discharge is great; it is peculiarly adapted to those patients who have a husky, dry cough, and pain in the breast, where there is every probability the bronchial glands, &c. are affected, and the salt water is prohibited; at the same time pultices and fomentations of the hemlock may be applied to the tumours.

* Vide Note XI.

CANCEROUS ULCERS.

Cancerous ulcers may be considered under two different points of view : first, those which succeed to a schirrhous tumour ; secondly, those arising from warts, chaps, or superficial sores.

If the schirrhous has been a long time before it degenerated into a cancer, the patient young, and otherwise in good health, regular as to the menstrual discharge if a woman, the ulcer not very painful, and has made but slow advances, we may reasonably entertain hopes of success. For that purpose we should put the patient on a course of the extract of the juice of hemlock, giving it in as large quantities as can be taken ; this, if continued a long time with patience, and a milk diet, I have known, in some instances, to succeed *. The sore may be dressed with pledgits, spread with Goulard's linament, cerate, or dipped in vegetal water ; fomentations or pultices of hemlock occasionally applied, or the carrot pultice. If the discharge be great and fetid, a decoction of the bark, with the effervescent draughts, may be given.

* Vide Note XII.

But

But where the cancer seizes the patient suddenly, as from a small wart or sore, or from a schirrus, soon after its appearance bursting, attended with incessant pain, quick in its progress, fetid, and ichorous in its discharge, with livid, fungous lips, the patient of a leaden, fallow colour, nervous, and troubled with flying pains, &c. if a woman irregular, or after forty-five, though we have every thing to fear, instead of stupifying with opium, which, after its effects are over, makes the miserable patients more sensible of their pain, and encreases the putrefactive disposition of the cancer; recourse should be had to the means already mentioned *, by which we may at least palliate the disease, and prolong the patient's life.

VENEREAL ULCERS.

Those ulcers that resist a mercurial course, generally are complicated with a caries of the bone, and by country air, a decoction of the bark, sarsaparilla, or both, with a milk diet, an exfoliation succeeds; after which the ulcer

* The malt infusion has, in those cases, been found to be serviceable.

generally closes. If there is any reason to suspect the virus not to be entirely subdued, we may put the patient on a course of the solution of corrosive sublimate, and decoction of sarsaparilla.

CARIOUS AND FISTULOUS ULCERS.

In the cure of those, particular attention must be had to the patient's age, sex, and habit of body. In the young, if the discharge is not great, and the caries deeply seated, we had better leave the exfoliation to the care of nature, as it must necessarily be a work of time: but where the caries is in the extremities, &c. and we can come at the bone, an exfoliation will be expedited by making perforations * here and there with a gimblet, awl, or perforator of the trepan, or the trepan itself, if there is reason to apprehend matter to be lodged in the cavity of the bone. The decoctions of the woods, and mild mercurials, are usually ordered; the use of the actual cautery is, with much reason, generally exploded.

* Vide Note XIII.

Those

Those simple fistulous ulcers, that are kept up by no bad habit of body, but remain after gun-shot wounds, or large abscesses, &c. where counter-openings have been made, and a seton used; if, on the patient's getting into the country, retrieving his flesh, using the bark, they should still continue, and nothing counter-indicates, a simple division will generally succeed, and a cure soon be perfected.

I must observe, that in all ulcers of the extremities, particular regard should be had to the varicous veins, which generally attend them; for on sustaining, by a proper bandage or laced stocking, their over-distended sides, and even sometimes opening them, our success will much depend.

S E C T. VI.

Of Wounds in general.

IT would be entering into both an unnecessary and too prolix a detail, to recapitulate the variety of distinctions to be found in surgical authors, as to the various circumstances attending, and difference between, wounds in general; I make no doubt it will be deemed fully comprehensive to divide them into simple, where the injury is confined to the common integuments, or to parts from which we have no reason to apprehend any bad consequence; and into complicated, where, either from the structure, situation, or greater or lesser importance of the parts injured, or from the different circumstances attending the inflicting the wound, symptoms proportionably dangerous may be reasonably expected.

But as all wounds are attended with some common symptoms, it will be necessary, before we enter into any particular enquiry, briefly to consider them, first as succeeding to a large wound of the common integuments and fleshy parts,

parts, in a person of no vitiated habit of body, and shew the different changes such a wound will undergo in its progress to healing at the four following periods, viz. First, inflammation. Secondly, suppuration. Thirdly, incarnation. Fourthly, cicatrization.

The first effects we perceive from such a wound is an effusion of more or less blood, and a retraction of the parts divided. If no considerable artery is injured, the bleeding soon stops, by the arteries contracting within the lips of the wound, and whatever extravasated blood rests in it, coagulates, and forms, with any dressings applied, a sort of bloody crust; but soon after, from the division of the various vessels, and irritation of the nervous filaments, an influx of fluids will be rapidly driven into the surrounding cellular and adipous membrane, by which the lips of the wound and adjacent parts become equally tumid, tense, and painful, from the reiterated impulses of the fluids towards the centre of the division, distending and distracting the sides of the different series of vessels; the cellular and adipous membrane will be protruded and elevated into a sort of tumour in the wound, whose lips will be now retorted, and the bottom seem raised;
the

the surrounding skin will appear to make a tight stricture on those tumid parts. This state of the wound will be attended with redness, heat, pain, pulsation, a bloody serous discharge, and the local and general symptoms of inflammation strongly characterized.

Those symptoms will continue, attended with a more or less degree of fever, until, generally about the third or fourth day, a suppuration is formed in the cellular and adipous membrane, and which will be in proportion to the preceding tumefaction and extent of the wound. The distended vessels now become unloaded, the tumid, cellular, and adipous membrane dissolves into pus, and the inflammatory symptoms, vulnerary fever, &c. will consequently, in a great measure, subside. In this state the wound is said to be in suppuration.

After this period the wound discharges daily a more or less quantity of matter, its lips proportionably subsiding; and this discharge continues until such parts of the cellular and adipous membrane, as are much injured, will be flung off in sloughs, or melted into pus, the distended vessels entirely unloaded, and the wound becomes uniformly florid, moist, and perspirable.

Here

Here begins what is generally termed the state of incarnation, in which it was imagined a new production of arteries, veins, nerves, &c. particularly in wounds with deperdition of substance, takes place, in order to form a substance similar to the lost flesh ; but it might be easily proved that no such incarnation is ever formed, and that it is the effect of the suppuration in the cellular and adipous membranes, by which the lips of the wound are proportionably lessened, and subside, and of consequence, its cavity diminishes, and it daily contracts every way. Here a regeneration of flesh, formed by a dilatation and extension of the divided vessels, far from being a favourable circumstance to the healing of a wound, would powerfully oppose it, this event depending on an opposite cause. The floridness of the wound at this state, and its shooting out, in appearance, fleshy tubercles or funguses, depend on the more or less inflammatory disposition of its vessels, somewhat similar to what we frequently see happen in inflammations of the eye, where the inflammatory extension of the vessels of the tunica conjunctiva seems to form large funguses.

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We are now come to the fourth and last period, which is cicatrization. The lips of the wound having, by the effect of the preceding suppuration, sunk to a level with the bottom, the skin being extended as far as possible towards the centre of the division, and the discharge greatly diminished, the cicatrix begins to form by the cellular membrane, and the extremities of the small series of vessels, between which a fine gluten is interposed, beginning to dry round the edges of the extended skin, of which it becomes a continuation, and proceeding gradually, in general, from the circumference to the centre, leaving a cavity proportioned, for the most part, to the loss of substance in the wound. But the progress, through these four periods, which wounds undergo to their cicatrization, will be materially changed by their being combined with any of the subsequent accidents.

First, if an hæmorrhage succeeds from the puncture or division of some considerable blood-vessel. Secondly, if any of the tense nerves, membranes, or ligaments are injured, or articular cavities laid open. Thirdly, if the wound is contused and lacerated, or made by the bite of an enraged or mad animal. Fourthly, if
any

any extraneous substance is lodged in the wound. Fifthly, if the patient is of any particular bad habit of body. It is from the number and complication of these accidents, the prognostic of wounds, in general, is drawn.

P R O G N O S T I C.

There is no accident more strikingly alarming than a large discharge of blood from a wound, as this must arise from the division of some large blood-vessel; but notwithstanding, if the surgeon is near at hand, the artery not one of the more capital trunks, and situated so that we can make use of the ligature, there is none less productive, in general, of any succeeding ill consequence. It is not so in wounds where any of the tense nerves, membranes, tendons, or their expansions, ligaments, &c. are injured; for those cases are ever attended with a train of inflammatory and nervous symptoms, more or less acute in proportion to the extent of the injury done those parts; they seldom or ever suppurate favourably, and the inflammatory tension of the surrounding parts too often terminates in different collections of matter, to give exit to which, we are obliged frequently
to

to have recourse to repeated incisions. If the patient recovers, very often the functions of the parts affected are either greatly impaired or lost.

All those symptoms we generally experience in their full force, where articular cavities are laid open, with this additional one, which more frequently happens in those cases, viz. dangerous absorptions of matter, which are often translated to some of the more important viscera; or, falling on the nervous system, excite a variety of dreadful symptoms, which too frequently terminate only with the life of the patient.

Contused and lacerated wounds, in which rank those caused by gun-shot are justly placed, are not only liable to all the symptoms already mentioned, but to large suppurations, in proportion to the concussion, contusion, and laceration of the parts; for such must be flung off in sloughs. Those made by the bite of an enraged or mad animal require the utmost attention; particularly the last, where the patient is so liable to that dreadful consequence, the hydrophobia.

While any extraneous substances rest in the wound, the constant irritation it occasions
keeps

keeps up the inflammation of the surrounding parts, and is productive of large ill-conditioned suppurations. The patient, at the same time, labouring under any particular bad habit of body, must necessarily render the event of all wounds, attended with any of those different circumstances, much more precarious.

C U R E.

The treatment of simple incised wounds, where the integuments are only slightly divided, requires, in general, little else than sustaining the lips in contact, by means of slips of sticking-plaster, bandage, &c. and a favourable situation of the part; nature, by means of a nutritious gluten, cements them, often in four or five days, without any inflammation or suppuration of moment intervening; but where not only the integuments, but also the muscles are divided, the retractive force, by which the lips of the wound are drawn from each other, is considerably increased, and the retaining them in contact becomes a matter of some difficulty; to effect which, has excited the ingenuity of surgeons to invent different kinds of futures: many of them, with great propriety,

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are either looked on as obsolete, or are justly proscribed, and the use of the rest much restricted.

We find two causes conduce to the retraction of the lips of a wound: First, the natural elasticity of the integuments. Secondly, that contractility with which all muscular fibres are endowed. The first, what is called the dry future-bandage, and situation, will, in general, sufficiently counteract. The second only can justify the use of the needle. If we suppose any of the muscles to be transversely cut, the effect which follows will be, that the divided parts will be oppositely retracted, one towards its origin, the other towards its insertion, where this retractive force lies, and not in the lips of the wound; and it is here our endeavours should be employed to counteract this contractility of the muscular fibres, which the constant irritation of sutures does but encrease; besides, they are painful in making, and the ligatures we leave must be considered as foreign substances, which often, in counteracting the retraction of the divided parts, cut through, and are ever productive of more or less inflammation and suppuration, circumstances totally op-

opposite to our intention of expediting the cure by making use of them.

However, if a case should offer, where it appears to the surgeon that the dry suture, uniting bandage, and situation, are insufficient to keep the lips of the wound in contact, and that he has recourse to the interrupted suture as a surer means to answer his intention, the manner of making it is simply this :

Take a crooked needle, of a size proportioned to the depth of the wound, threaded with a flat, waxed ligature, and having previously cleared the wound from grumous blood, &c. let the lips be brought into contact by an assistant ; pass your needle at a proper distance from the edges, so as to secure a good hold to the stitches, and prevent their cutting through ; you must carry it to the bottom, and out at the lip opposite to that in which you entered it. In this manner you make what number of stitches you think proper ; if many, we begin generally to tie the middle one first by a single knot, and a slip one over, but not drawn too tight. While you are tying the ligatures, let the lips of the wound be supported in contact. The dry suture, uniting bandage, and a relaxed situation of the parts, will be absolutely

necessary to obviate the danger of the ligature's cutting through. If no accident intervenes, we should defer opening the dressings for three or four days; but if great pain, inflammation, &c. succeed, we had much better cut the stitches, as a suppuration will be unavoidable, and trust the event to the means already proposed.

It is no uncommon circumstance to happen, where sutures have been employed, that, though the wound at the surface seems united, matter will be formed at the bottom, under the ligatures; in this case, before we have recourse to opening the whole tract of the wound, we should endeavour to give the matter exit at one of the extremities, which may prevent much future trouble. After the wound is united, you withdraw the ligatures, taking care not to let them lie too long in the wound; if they are taken out one by one, you may begin earlier than if all at once; the dry suture should be continued two or three days longer as a security.

If any considerable artery is opened, our first intention should be to restrain the hæmorrhage; this is fulfilled either by the ligature, dry lint, sponge, or agarie, assisted with a proper degree of compression. If we employ the ligature, we
expe-

expeditiously stop the bleeding, are generally secure from any future return, and may after support the lips of the wound nearly in contact; but if we use lint, agaric, &c. we are obliged to cram the wound with those substances, use compresses and a tight bandage, and after all, the hæmorrhage will be extremely liable repeatedly to return. If the artery can be easily come at, I think the patient will suffer much less by taking it up, by which we, in a great measure, avoid the inflammation, and perhaps a tedious suppuration, which will be a certain attendant on the latter method.

In all wounds of tense, membranous, ligamentous, or nervous parts, where the articular cavities are laid open, our utmost attention should be directed to obviate the dangerous consequences of the inflammatory symptoms, which we have every reason to apprehend will succeed. Bleeding, gentle purging, and the antiphlogistics, should be strongly enforced, in proportion to the patient's strength and acuteness of the symptoms. Emollient fomentations and cataplasms, as the linseed pul-tice, the softest and easiest dressings, with a prudent use of opiates, particularly at night, or according to the degree the nervous system

may be affected, will be absolutely necessary. If the wound is made by puncture, very often a free dilatation of the parts will procure a cessation of the most alarming symptoms. After the inflammatory diathesis is on the decline, and the suppuration is formed, the bark may, with advantage, be administered.

If the articular cavities are laid open, the suppuration has been formed, and the inflammatory symptoms on the decline, and unexpectedly the discharge lessens, becomes thin, and the wound pale and flabby, the patient looks ill, has a small quick pulse, tongue dry, and is invaded with irregular shiverings, we may justly apprehend a dangerous absorption of matter into the circulation, and should lose no time to obviate its bad effects. The bark should be given in as large quantities as the patient's stomach will bear it, and the effervescent draughts administered from time to time; his drink should be of the antiseptic kind; blisters should be applied, and, in short, every method put in practice to hinder the matter from being translated to the nobler parts, and to determine it to those where art can be of assistance. We should be extremely attentive to examine, from time to time, if
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there is any collection of matter formed any where near the parts affected, and if there is, to be sure to give it immediate exit*.

The treatment of gun-shot wounds differs little from the method we have already set down. Extraneous substances ought, in general, immediately to be extracted, which will be done with greater facility by freely dilating the wound †; but if, when called, the parts are in a high degree of tension, and quite irritable, it will be improper, until a suppuration takes place, to attempt removing them. The softest cataplasms and most emollient fomentations, &c. should be applied, and the bark freely given, when the suppuration is formed, and the inflammatory symptoms subside.

If at any period of a wound that nervous affection, a locked jaw, should seize the patient, we must have immediate recourse to large and repeated doses of opium, and frequent use of the warm bath; the tinct. the-

* Vide Note xiv.

† Gun-shot wounds, in general, should be freely dilated, both at the entrance and exit of the ball. Mr. de la Martiniere prefers compresses wrung out of sea-water to all other topical applications; and strongly contends for the utility of setons, introduced through the tragit of the wound.

baic. with Huxham's antimonial wine, may answer best. The neck and belly, which are often stiff and tense, should be embrocated with the camphorated liniment, to which some tinct. thebaic. may be added; emollient clysters should be given as occasion may require; and notwithstanding the irritation attendant on blisters, they may, with advantage, be applied to the legs, back, &c.

Notwithstanding the number of pretended specifics administered, in order to prevent or relieve the fatal consequences arising from the bite of a mad animal, it is melancholy to find how fallacious they all generally prove; for the apparent good effects attributed to them, in preventing a hydrophobia, often arise from the confidence the patient has in the medicine, by which the mind is quieted, and the dreadful apprehensions of the consequence subside; and much more frequently from the animal's not being really mad: for we find that all those boasted specifics prove ineffectual when once the patients are seized with the symptoms of the hydrophobia*. It is judiciously remarked by a celebrated physician†, that we should have an attention, in those cases, particularly

* Vide Note xv.

† Dr. Fothergill.

to enquire what part was bit, and through what kind of covering; as in a bite through thick garments, or leather, the animal's teeth would be wiped clear from the venom, and ought to give less uneasiness than when it happens to the naked skin; and by no means to kill the animal until it is past a doubt whether it is mad or not.

If we are called to a patient who has been recently bit, our first attention should be to wash and cleanse the wound from the poisonous flaver, as expeditiously as can be, and to enlarge it freely by the knife or actual cautery; or what may be productive of more success, if it is practicable, to cut out the piece; after which to promote the discharge as long as possible. Mercurial frictions are generally employed, so as to keep up a gentle salivation for three or four weeks; but our chief dependance should rest on keeping up the discharge from the wound, which should by no means be let to heal for a considerable length of time. If, unfortunately, any symptoms of the hydrophobia appear, the desperate situation of the patient should not deter us from attempting to relieve him. Some blood may be taken from his arm, if the state of his pulse
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seems to require it; clysters of milk and water, &c. should be frequently administered: cinabar combined with musk, mercurial frictions; vin. antimon. Huxham. and tinct. thebaic, where great restlessness prevails; or the extract. thebaic. in pills, may be occasionally given, and the warm bath frequently used. I should imagine, that if the part bit were healed, laying it open by the knife or cautery might be found useful.

In the cure of all wounds the surgeon should particularly attend to the patient's habit of body, and usual course of life, as they will direct him in prescribing a suitable regimen, and regulating the rest of the non-naturals, matters of the utmost consequence in the treatment of all wounds.

N O T E S
A N D
I L L U S T R A T I O N S.

N O T E I.

P R E F A C E, (*)

THERE appears so much candour and simplicity in his manner of relating why he adopted a contrary method of treating gun-shot wounds to that which then prevailed, that I thought it might satisfy curiosity to give it here, translated from his own words. He says, I had not as yet seen the method of applying the first dressing to gun-shot wounds; it is true, I had read in John of Vigo, that gun-shot wounds were poisonous, on account of the powder; and for their cure he ordered them to be cauterized with oil of elder boiling hot, with which should be mixed a little theriaca;

riaca; and that I might not be mistaken in the manner of using the said oil, knowing that it would give the patient extreme pain, I had a mind, before I applied it, to see how the other surgeons did at the first dressing, which was to apply the said oil as boiling hot as possible to the wound with tents and setons; so I took the courage to do as they did. At last my oil was out, and I was obliged to apply in its place a digestive made of the yolk of an egg, oil of roses, and turpentine. I could not well sleep all night, fearing that, through the want of cauterizing, I should find those wounded, to whom I did not apply the oil, dead, poisoned, which made me visit them in the morning very early; when, beyond my expectation, I found those to whom I applied the digestive feel less pain, and their wounds without inflammation or tumour, having slept tolerably well during the night. The others, to whom the said boiling oil was applied, I found feverish, with great pain and tumour about their wounds. From thence I resolved never more so cruelly to burn the poor gun-shot wounded patients. Vide his works in fol. p. 1198.

NOTE

N O T E II.

S E C T. I. p. 17. (†)

MR. Haller, in examining the circulation in the mesentery of a live frog, has found, as he says, that “oscillation is almost the constant effect of the abatement of the motion of the capillary arteries. In this state the blood goes and comes, and it alternately follows its natural course, and retrogrades again towards the heart; this fluctuation is very singular in the places where the artery is divided: sometimes the blood of one of the branches presents in flowing back an obstacle to that of the trunk, which, having a superior force, drives it into its own branch, or into another; from whence it flows back again after some moment’s repose: at other times one of the branches possessing a superior force, causes the blood to flow back into the other through the trunk, or drives it towards the heart by the same trunk.

“But a finer sight still is that which the veins exhibit, communicating with each other, and in which the blood is seen to move in all possible directions.

directions. From a vein seated on the right, it passes through a communicating trunk placed more to the left, and the resistance it meets there causes an oscillation. After that oscillation it descends by this trunk on the left towards the intestines, or else it retakes its course by the communicating trunk in the middle. Sometimes on coming out of that vessel it returns into its natural direction, and runs towards the heart; at other times it retrogrades below the insertion of the vessel of communication. It happens still that the motion beginning by a trunk on the right near the intestines, the blood by anastomosis passes into a trunk placed on the left; from whence it retakes its course, sometimes towards the heart, and sometimes downwards towards the intestines; or else it continues to move in its trunk towards the heart, following the ordinary laws of circulation. Lastly, we see at the same time, and in the same venous trunk, the blood that returns from a branch divide and flow towards the heart, and partly towards the intestines". Vide Mem. sur le Mouvement du Sang.

NOTE

NOTE III.

SECT. II. p. 21. (*)

DR. Cullen judiciously remarks, that in the phlegmon, the inflammation seems to affect especially the vessels on the internal surface of the skin, communicating with the lax subjacent cellular texture, whence a more copious effusion, and that too of serum convertible into pus, takes place. In the erythema, the affection is of the vessels on the external surface of the skin communicating with the rete mucosum, which does not admit of any effusion, but what separates the cuticle and gives occasion to the formation of a blister, while the smaller size of the vessels admits only of the effusion of a thin fluid, very seldom convertible into pus. Vide first Lin. of the Pract. of Phys. p. 215.

NOTE

N O T E IV.

S E C T. II. p. 35. (*)

I HAVE met with, in the Memoirs of the Royal Academy of Sciences at Stockholm, a sensible memoir on opening critical tumours, by a Mr. Acrell, which would seem to disprove this general axiom; but it must be considered, that those cases which terminated so unfortunately, occurred in a crowded hospital, where, from the foulness of the air, and several other concurring circumstances, the event must ever be extremely precarious, even after opening any large collections of matter. The following is an abstract of it.

In July, August, and September, in the year 1743, a violent putrid fever raged in that part of the French army which returned from the expedition into Bohemia and Bavaria. It had been preceded by a very severe winter, a tertian fever in the spring, want of provisions in summer, bad attendance, and continual fatigue. No sooner had they reached the frontiers of France, and were come to a state of rest, tranquillity, and good attendance in the camp-hospitals,

tals, but swellings shewed themselves behind their ears, under their arms, and in other parts : and apparently with a very good effect towards their recovery. To accelerate the excretions, I at first treated all in the hospital, under my care, according to the common method, promoting the tumours, opening them when ripe, and cleansing and evacuating them. But all that was done by the first opening was only the discharge of the pus ; most of them dying betwixt the fourth and eighth day after the opening. This miscarriage with such a multitude of patients gave me an infinite concern, that I determined to deviate from the common course of practice.

1. I observed, that before the appearance of these swellings the patients had all the symptoms incident to such fevers. 2. That as these swellings appeared and increased, the symptoms diminished. 3. That when they were quite ripe, and fit to be opened, the patients found themselves best. 4. Upon being opened the patients relapsed, the symptoms returned, and most of them died within eight days after. 5. If the tumours were left unopened for a whole week, the patients found no manner of inconveniency from them. 6. Among the num-

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ber of patients this month, above a thousand had swellings, which, notwithstanding the application of suppuratives immediately after their appearance, and though with a fluctuation of matter, yet dispersed; the patients soon after had a looseness, with a mixture of pus in their fæces, their saliva was phlegmatic, at their nostrils they voided a sanious matter, and they got safely over the disease. 7. That the opened tumours soonest dried up, which was followed by a violent burning. 8. That in those who had such swellings, and, instead of attendance, had been continually carried in the waggons, the matter had distributed itself, and the cuticula subsided. These also recovered, but not perfectly; being a long time after subject to ailments, and chiefly the phthisic.

These observations convinced me that the vital powers secreted the morbid humours through the above-mentioned tubercles, and carried them to the glands near the ears, armpits, and other parts, where they stagnated, dissolving the ends of the veins, and the pinguinous vesicles thereabouts, into a liquid pus, which afterwards, by the mere impulse of nature, were conveyed to the secretory vessels or glands in the nose, gums, throat, and intestines;
but

but in most, as the event manifested, by no means suffered the external air to mix with the pus in the opened tumours. My inference was, that no swelling of this kind was to be opened, but entirely left to the vital powers, supported by a generous aliment, to separate and ripen the pus, without any aid of suppuratives, or without cathartics to arrest their progress. Upon their growing ripe for opening, I immediately began to purge the patients with a potion of rhubarb, Calabrian manna, and Epsom salts: I carefully attended to its effect, and found, after the second or third purge, the discharges by stool to consist of a purulent slime. This process, contrary to expectation, strengthened the patient, the pus decreased, the swellings gradually disappeared, and the far greatest number recovered.

N O T E V.

S E C T. II. p. 35. (+)

OF the many cases of this kind I have seen terminate fatally, and where scarification certainly precipitated the parts into a state of mortification, I shall here mention the following.

January the 16th, 1776.

A man aged thirty-six was received into the hospital : he had a cough and an asthmatic affection as long as he remembered. He was a hard drinker of spirits. Two months before, he got a cold ; a great difficulty of breathing succeeded, and he became all over anasarcaous. His legs, which were extremely swelled, red, and tense, were scarified by a surgeon, two days before he came in. On examination, I found he had made the scarifications more than half an inch long. His right foot was completely gangrened, and a large mortified slough covered the left. The man breathed with great difficulty, and made but very little urine. Pills of soap, gum ammoniac, and vitriolated tartar, were ordered him, with the infus. amar. and spirit. nitr. dulcis ; antiseptic fomentations were applied to his legs, and the strong-beer pultice. He had no favourable change, and died the 25th. Before he died, the stench from his legs, which were completely mortified, was insupportable.

In anasarcaous swellings, that are generally throughout the body, where the thighs, scrotum and legs, are often prodigiously enlarged, punctures made transversely frequently succeed
extremely

extremely well in unloading the cellular system, provided the legs have no painful inflammatory tension.

N O T E VI.

S E C T. III. p. 47. (*)

THE following is a fatal instance of the great danger in deferring too long the opening collections of matter, the consequence of fevers.

November, 1777.

I was sent for to Thomas-street, to see a Mrs. ———, aged twenty-eight. She had been brought to bed about three weeks and some days. The account I had of her case was as follows: she came five weeks before her time, had a shedding for three days before her delivery, which was effected by turning the child. Two days after she took a pain in her right leg, which after fixed in her knee, accompanied with a rapid miliary fever. There were three gentlemen of the faculty attended her in the beginning: her lungs seeming to them much engaged, they bled her, blistered her on the back, and after on the knee. I believe it was in the fourth week of her illness

I first saw her, along with a physician of eminence; and her situation appeared to me as follows:

She had a rapid light pulse, a hectic look, was generally sweating, and some days purging; for three days before we saw her, she had irregular shiverings, followed by an exacerbation of the fever; she had a troublesome cough, but spit up nothing but a frothy mucus. On examining the knee I found it vastly enlarged, and painful to the touch; the leg and foot oedematous. On touching a little above the patella I found a sensible fluctuation, which seemed to lie deep.

In consultation, I proposed instantly making an incision to give exit to the matter; but to this the doctor objected, saying, that to him the fluctuation was by no means perceptible; that the touch was very fallacious; and that he had seen tumours about the articulations opened, and no matter follow. His advice was, to apply the bread and milk pultice, administer a paregoric at night, and wait the event for some time. I own I reluctantly acquiesced, as the woman laboured under the symptoms of a reabsorption of matter; and that, notwithstanding the touch is fallacious, yet when corroborated

roborated by the above symptoms, and the woman's alarming situation, a small incision, if even we were mistaken, would have been certainly prudent, as it would not interfere with the articulation, and could not be productive of any extraordinary degree of danger. However, the doctor was positive, and his mode of treatment adopted. The woman rapidly lost ground every day, and all her symptoms increased.

At the end of fifteen days, from the time of our attendance, when the woman seemed really near exhausted, I believe he perceived he was wrong, and consented to my opening the tumour at its most prominent part, which was interiorly, and a little above the right knee. On the incision's being made, an amazing quantity of matter was discharged; and having sufficiently extended the incision, I found the matter had detached the muscles all round from the crureus. Having dressed her lightly up, I ordered her a strong decoction of the bark, dressed her twice a day, and at every dressing there was a great discharge. After some days I ordered her the bark in powder, with a little powder of cinnamon, to be taken in the decoction, or claret, or in both.

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Jellies,

Jellies, Seltzer water, effervescent draughts, and every thing that would quiet, or sit on her stomach, was tried; but still the hectic heats, sweats, &c. kept up, and no appetite.

About ten days from the first incision, a large collection of matter formed interiorly, where we take off a leg, to which I gave sufficient exit. The leg and foot were vastly œdematous. She still continued, since I first saw her, to get forty drops of tinct. thebaic. in a draught every night. The knee continued, on the least motion, excessively painful, and the discharge great, and generally oily, and she perceived the bones greet. She became weaker every day; and three days before she died she was seized with severe irregular shiverings, colliquative sweats, purging, a bilious puking, and scarcely could retain any thing on her stomach. Her senses were generally perfect; and she died to the last degree exhausted, at the latter end of the seventh week from the time of her delivery.

Through the whole of this poor woman's case we can perceive a series of mistakes; for in miliary fevers succeeding child-bed, we have seldom occasion to have recourse to bleeding, or can do it without the utmost hazard to the patient's

patient's life. If this, in general, holds good, here, where the woman sustained a great hæmorrhage before delivery, its good effects must be extremely doubtful. That inquietude and anxiety about the præcordia, too often mistaken for peripneumonic symptoms, are the constant attendants on eruptive fevers, and we should be very attentive to distinguish. At the latter end of those fevers, depositions of matter are often thrown on the extremities, and generally near the articulations, often unattended with that previous degree of inflammation corresponding to such a quantity of matter; and we should be careful to give it immediate exit.

In this case the woman laboured, some days before I first saw her, under the symptoms of a re-absorption of matter, which nature threw off to put a favourable termination to the disease. It was an unpardonable mistake to oppose my letting it out; for white swellings of the knee, which the doctor alledged to have seen opened with very bad consequences, and critical translations about it, are quite different: the first requires deliberation; the second admits of no delay. I have strong reasons to incline me to believe, that, had the matter been

been let out on our first seeing her, she would have recovered ; and its not being done until, by its continual re-absorption, it broke down the crassis of her humours, and in all appearance destroyed the capsule of the joint, and got under the patella, which articulation became carious, left no resource but amputation, which she would not hear of, and which, every thing considered, would, in all probability, have proved unsuccessful.

I shall here add the two following cases : the first presents a rare instance of a translation of matter, in consequence of a pleurisy ; the second shews, that from incisions, which are but just sufficient to give free exit to the matter, we may procure every advantage to the patient, and reasonably expect a superior degree of success.

May the 27th, 1776.

George Smith, aged between thirty and forty, a strong man, was brought to the hospital, apparently dying. The account his friends gave me of his disorder was as follows ; that, three weeks before, he was seized with a pleurisy, the pain entirely in his right side. He was bled seven times, purged, &c. seemed to recover, and got up at the end of a week, when he took a purging, attended with a tenesmus ;

nesmus; he had all along a difficulty of breathing: there now appeared a vast enlargement of the left side of the scrotum, and as he had an hernia ever since he remembered; those who attended him imputed the swelling to it. He continued so until the time he came to the hospital.

The man now seemed to me to be dying; but being extremely desirous of having something done for him, I made an incision the whole length of the tumour, and let out a great deal of thin matter, and a coiled-up piece of cellular membrane, resembling the testicle: the matter lay in the tunica vaginalis testis, and the hernial sack appeared above. He got no relief by the operation, his difficulty of breathing increased, and he died next day perfectly in his senses.

DISSECTION.

On opening the thorax, in the right cavity was, I am sure, between two and three pints of matter, which seemed to dissolve the greater part of the right lobe of the lungs, the ragged remains of which adhered firmly to the pleura; the

the left was not engaged. The heart was pale, soft, and empty. On examining the scrotum, I found the pus had been collected in the tunica vaginalis testis, and the testicle extremely small. The hernial sack was smooth and polished, and considerably thickened, and adhered to the tunica vaginalis of the spermatic chord, and round about; no part of the intestine or omentum was in it, but the first appeared at the ring, which was extremely dilated and thin.

Charles Tyrrel, aged twenty-three, a robust, healthy man, from suffering much by fishing at sea, was seized with a severe fever, and had no medical assistance for sixteen days; at the end of which time there suddenly appeared a large tumour round his left thigh, stretching up the buttock: it was lanced, but not sufficient exit given to the matter.

The next day, January the 2d, 1775, he was carried to the hospital; I found him much emaciated, a quick, small pulse. On examining his thigh, something like a torn placenta appeared at the orifice: I put my finger in, and found all that side up to the buttock hollow. I immediately dilated up and down
sufficiently,

sufficiently, so as to give free exit to the matter; and extracted a great deal of that substance, which seemed to be the cellular membrane putrid, and a quantity of ichor. There was another abscess under the rectus near the patella, which I opened, and found some laudable matter in it. He took two drachms of the bark every two hours in port, and had broth, &c. allowed him.

Next day his pulse was not so quick; he was much better. The sanies was washed out of that great cavity with an injection of barley-water and honey.

The 6th the right knee was much enlarged, and very painful; and throughout the joint, which was vastly distended, there was a manifest fluctuation. As I apprehended it to be a collection of acrid sinovia, in too great a quantity to be absorbed, I punctured it with a lancet laterally and superiorly, and evacuated near half a pint of the sinovia, partly thin, and partly in lumps, like jelly, of a purulent cast. I applied thick compresses dipped in Goulard's vegetal water, and rolled up the knee with the figure-of-eight bandage.

Next day, the 7th, he was better, and the knee seemed perfectly well, and moved with-
out

out pain: the dressing was renewed; the thigh of the other side better; the discharge less, and more purulent; he slept tolerably well, and took nourishment; his pulse, though very quick, was yet fuller. The bark, &c. was continued. The 8th, no change.

The 9th, rested but badly, and seemed weaker, and his pulse much smaller and quicker. I dilated up to the buttock, as the matter rested there. His medicines not changed. The 10th and 11th, his pulse much better, and the discharge less. The 12th still better, and slept tolerably at night; little or no discharge from the thigh; and of the knee no complaint, or fulness. No change in the treatment. The 13th, no change, except his pulse a little quicker. The 14th, 15th, and 16th, growing better; the discharge very little, and getting strength every day, and the knee very well, but weak.

The 31st, the incision was near being cicatrized, and he able to get up, and getting flesh. He left the hospital the 23d of February, having very little weakness or stiffness in the knee, but was getting forward every day, and became quite well.

Of

Of the cases that fall under a surgeon's care, there are none which require a more serious deliberation how to act, than where an opening is to be made into the articulation. Gouch describes a collection of the liquor of the mucous glands lying under the rectus muscle of the thigh; which, if I remember right what he says, might be taken for such a case as is under review. But here the fluctuation through the joint put the matter out of doubt.

As I could not reasonably expect the absorption of so large a quantity of sinovia, and the patient's being so debilitated and extenuated by pain, not admitting of any delay, if I did not make a puncture, this purulent sinovia would corrode the ligaments and articular cartilages, and an anchylosis would be the best event that could be expected. On the contrary, if a large incision was made, the air would be let into the articulation, and irritation, inflammation, and a subsequent suppuration succeed.

In those cases a puncture with a fine lancet occasions no additional irritation, the joint is freed from the distending acrid sinovia, and a happy event is, as far as I have seen, the consequence: whereas, by the contrary mode
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of treatment, the loss of both limb and life is not unfrequent.

N O T E VII.

S E C T. III. p. 50. (*)

I HAVE met the two following remarkable instances of this, and where the administration of mercury in the beginning seemed to aggravate every symptom.

June, 1778.

A young boy, aged between sixteen and seventeen, had a large bubo, attended with a virulent running and phymosis. The bubo was opened by caustic, and he took a variety of mercurials internally for two months before he came into the hospital; during which time the whole groin came to be engaged in one putrid ulcer, extremely irritable.

I began with mercurial frictions on the leg and thigh of that side, which was the left, a drachm only at a time, and gave him a decoction of the bark at the same time. But, far from any amendment, after three weeks treatment, and applying various topical applications,

tions, the ulcer extended, with no other discharge but a thin putrid ichor, attended with great pain, want of rest, but when recourse was had to opiates. I found that he was always remarkably worse after rubbing. He did not spit, and was, to the last degree, exhausted.

I had him washed out, and put into a clean bed, gave him a gentle laxative, and put him entirely on the bark, with a generous regimen. From the moment mercurials were left off, he gained ground every day ; that vast putrid sore began to suppurate, and gradually to clear, and his appetite, flesh, and strength, to return ; so that, in about four weeks, it was contracted to the breadth of a crown, of a clean sore. He had a purulent running from the urethra.

I now again began with the frictions, which had the desired effect, and after rubbing in about two ounces of the ointment, at a drachm a time, he was in a condition to leave the hospital well, and go into the country.

July, 1778.

A young man, aged twenty-seven, came into the hospital ; for four weeks before, he had a venereal complaint, viz. a running, and a bubo in each groin. I took him in, and, after the usual preparation, I began by rubbing in two
I drachms

drachms of mercurial ointment every second night. After ten or twelve days rubbing he gained no ground, was quite restless, and could not sleep at night. There appeared a deep fluctuation in both the buboes : a caustic was applied, and the matter let out, and the frictions continued, but with no advantage ; for the apertures made by the caustic degenerated into large gangrenous ulcers, and the glands of the groin were exposed, being divested of their surrounding cellular membrane, and they appeared as large as chesnuts, which kept up a constant irritation, attended by a thin, acrid discharge, hectic heats, no sleep, and constant pain. I tied four or five of them up with a waxed ligature, and they fell off in some days.

As the frictions increased the sloughy dispositions of the parts, pain, &c. at the end of five weeks, I had him washed out, and gave him the bark both in powder and decoction, and had him supported with jellies, broths, &c. opiates were administered as occasion required. He was so reduced as to become a mere idiot, and discharged every thing under him. His hips and back had gangrenous eschars on them. However, at length things took a favourable turn ; and, notwithstanding the muscles

cles were all bare in the upper part of the thigh, yet a laudable suppuration took place; he gained strength and flesh, and the fores contracted into a narrow compafs.

At the end of three months, when the fores were near cicatrized, I began to rub him with a drachm of mercurial ointment every third night; but when he was about ten days rubbing, he began to spit blood, and got a cough, and a pain and straitness in his breast. I immediately got him washed out and purged, gave him an electary of nitre and conserve of roses, and, after the spitting of blood subsided, put him on a milk diet, with a decoction of the bark, and sent him into the country, strongly inclining to a hectic; but he soon after recovered his former state of health.

I have reason to imagine, that the matter in the buboes, which formed very deep, had, before it came forward enough to be let out, destroyed the cellular membrane round the glands, which left them so exposed.

I have ever experienced, in a variety of venereal cases, that persisting in the use of mercury, after a certain time, rather tends to aggravate every symptom. There are some of

those complaints, notwithstanding all our endeavours, will grow worse every day for some time; after which, even if they were left to nature, they gradually become better. The administering the frictions latterly, I do not doubt, was the occasion of this man's spitting blood; although he did not rub more than three drachms during the ten days. But he was before subject to a spitting of blood, which he concealed from me during his illness.

N O T E VIII.

S E C T. IV. p. 56. (+)

THE following instance will, in some measure, shew what success we may expect from this method of treatment.

October the 25th, 1777.

A man, aged between thirty and forty, who had been for more than a year subject to a constant desire of making water, and pissing blood at times, often came to the hospital for advice. I once introduced the catheter, but discovered nothing that could lead to the knowledge of the cause. He took a pain and swelling

ing of his left leg and thigh : in two days after, he was carried to the hospital.

When I saw him, the leg and thigh seemed to have an inflammatory œdema, and about the toes had a gangrenous appearance. I ordered a boiled bread and milk pultice, with oil, to the leg, and gave a grain of opium every two hours, or an equivalent of Huxham's antimonial wine, with tinct. thebaic. The next day half the foot was completely gangrened, but he was easier. The day after, the whole foot was gangrened, and the third morning he was dead.

It was on Mr. Pott's recommendation this method was tried ; the only advantage procured was, to keep the man easy. It was a bad case ; and although I cannot say I entertain any great opinion of the method, yet this instance would not prejudice me much against it.

NOTE IX.

SECT. IV. p. 59. (*)

THE following case shews, that it is seldom prudent to leave gangrened limbs, after the line of suppuration is formed, to fall off of themselves.

October the 20th, 1777.

A fine girl, aged between eight and nine, playing on a car, had her right arm engaged between the rungs as the car was going, and it was broke about an inch and an half above the elbow; the bone protruded anteriorly, I believe, for a small wound was made, which bled a good deal: a young man bound up the arm extremely tight. All this happened on Monday.

On Tuesday she was brought to the hospital, and in the evening I saw her. The fore-arm was quite livid and cold, the circulation having entirely ceased in it; a quantity of bloody serum came from the wound, which was dressed with a small pledgit; the common fomentation, with vinegar, crude sal ammoniac, and some spirits, were immediately got ready, and
she

she was ordered to be incessantly stuped all night ; fifteen drops of tinct. thebaic. was prescribed for night. As she was this day brought from the country, ten miles off, we judged nothing more was requisite for the present.

On Wednesday I found she had passed a tolerable night ; the arm was somewhat warm, but this I imputed to the stuping ; the insensibility remained ; there was a considerable degree of tension above the fracture ; she was not thirsty, but was restless : it was proposed to dilate the wound, but to this I objected, in this high state of inflammatory tension : six ounces of blood were taken from her arm ; a solution of manna and Rochelle salts ordered to be given by spoonfuls, to procure some motions ; the stuping to be continued. In the evening her fever was rather less : fifteen drops of tinct. thebaic. were ordered again for night.

Thursday, on examining the arm, a circular line of suppuration could be perceived above the fracture ; her pulse was softer, and her skin cooler ; she had two or three motions in the night ; the fore-arm was quite black and cold : half a drachm of the bark, in two spoonfuls of saline julep, was ordered every two

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hours ; the stuping to be continued, and the bread and milk pulvices to be applied to the arm at the line of suppuration, and the paretic as usual.

Friday, the line of suppuration was more perceptible, and was dressed with pledgits of linament ; the bark as usual ; applications the same : the arm seemed a good deal less tense, and a purulent serosity came from the wound : Oat-meal boiled in porter to a pulvices, instead of the bread and milk, was applied round it ; the fore-arm wrapped in cloths, dipped in spirits : two stools were procured by the solution : the paretic at night as usual.

Saturday, the suppuration more advanced ; the tension of the arm and fever still subsiding, she passed the night tolerably well : those two days past she had chicken-broth allowed her : no change in the treatment.

On Sunday I found the suppuration so far advanced, that on lifting the fore-arm, which began to be offensive, I found it nearly separated at the fracture, and only held by some of the nerves ; these, and some other little ligaments, I cut with my scissors, and the arm separated at the fracture, leaving a stump very near clear : I applied the common dressings,
and

and continued the bark. I was informed, that she had the chin-cough for six weeks before the accident. I gave her five drops of tinct. thebaic. immediately on taking off the arm; for although she felt no pain, nor lost a teaspoonful of blood, she was much frightened.

She went on in the usual way, as if she had suffered an amputation; the bark was continued; but on Monday she got no paregoric, as she coughed much, and expectorated little: she passed a very restless night, which induced me to give it, with fifteen drops of Huxham's antimonial wine, which agreed very well with her.

The stump still remained so much enlarged, that the skin could not be extended so as to favour a cicatrization; but nature, by a second, and very abundant suppuration, procured what I almost despaired of; for it broke out, when near cicatrized, into a large sordid ulcer, very painful, and attended with a great discharge: when by this the stump diminished in thickness, and its surface, of consequence, contracted, the fore began to look well, and healed at the end of three months from the time of the accident.

From

From the difficulty I had in healing this stump, and the pain the little girl suffered, I am inclined to believe it would be well done to amputate on the separation of the gangrenous parts ; for, by the saving of skin in the amputation, we generally get the patient, comparatively speaking, soon well ; but otherwise the cicatrization is the work of time, and may, perhaps, be doubtful.

I dissected the fore-arm ; the muscles seemed red, sound, and firm ; nor could I perceive any extravasation of moment, even through the cellular membrane ; the articulation of the elbow was safe, but the ligaments appeared much inflamed ; there remained about an inch and a half of the humerus, and there was a fissure in the external condyle. The mortification seemed the consequence rather of a cessation of the circulation in the arm, occasioned, perhaps, by the tight bandage, than from any previous inflammatory tension or extravasation.

NOTE

N O T E X.

S E C T. IV. p. 59. (+)

OF this the following are remarkable instances.

December the 4th, 1776.

On Sunday evening, I was sent for to see a man in Stoney-Batter, aged fifty-five, who had broke his left leg, five miles off, by leaping down a ditch, and rode home after. On examining, I found the leg fractured at its inferior extremity, just by the articulation : there was a large contused lacerated wound over the internal malleolus, where the end of the fractured tibia was thrust through, which was very uneven and pointed. Having enlarged the wound above and below, and put the leg into a relaxed situation, I ordered the bread and milk pultice, and ten ounces of blood to be taken from him, and a paregoric for night.

Next day I found he had passed a tolerable night ; his pulse was full, and rather quick ; the leg was quite lax, and shewed no disposition to any extraordinary degree of inflammation. Ten ounces more of blood were taken from him ; papers of sal polychrest and rhubarb were ordered, so as to procure stools ; the
tailed

tailed bandage was substituted; and compresses dipped in a solution of crude sal ammoniac, in brandy and vinegar, ordered, to be renewed occasionally: the wound was not opened; the leg lay amazingly well.

Tuesday, he had passed a tolerable night; his pulse rather quick; the papers of purging powders yesterday had operated two or three times. He had a saline julep to take occasionally; his regimen had nothing particular in it from the general method in such cases, but the paregoric was omitted; the leg lay well. I dressed the wound this day; it was crude, and shewed not much sign of suppuration. As much of the powders was ordered as would procure him a stool or two. No tension, and a very inconsiderable degree of inflammation in the leg. The paregoric ordered for night.

Wednesday, he had passed rather a restless night; the leg lay well, but the wound did not digest, nor seem inclined; although neither the tension or inflammation appeared any thing extraordinary: the leg was rather lax. As he had stools yesterday by the powders, nothing was ordered but the paregoric for night. He had, I observed, a chilliness on him, and his
pulse

pulse was rather quicker. In the evening he had a severe rigor, and during the night raved prodigiously, and was extremely uneasy.

Thursday, in the morning, I found him delirious, his pulse extremely quick, great inquietude and restlessness; and on opening the dressings, I found a large gangrenous blister covering the foot, which was quite cold, as was the wound: however, the leg above the wound was soft and lax, and really seemed quite disengaged. The strong-beer pultice was instantly applied; a fomentation, to which brandy and crude sal ammoniac were added, ordered to be got ready, and the patient to be constantly stuped.

In the evening, in consultation, we found the gangrene was encreasing fast, and the leg becoming tense; and although, in some measure, he had his recollection, he was, notwithstanding, delirious. Three grains of opium, in three pills, one every three hours, was ordered, with three spoonfuls of a strong decoction of the bark, and a drachm of the powder, every three hours; the stuping to be continued; blisters to the leg and thigh of the opposite side; beef-tea; port and water, acidulated with lemon-juice, for drink. The
night

night he passed in a strong delirium, and could hardly be kept in bed.

Next morning, Friday, the leg was totally sphacelated, and the thigh tense. He took none of his medicines but once. Long incisions, to let out the putrid serosity and air, were made; stuping, &c. continued. The evening, every thing worse; he was raving and struggling continually, and got no rest by the opium. Next day, Saturday, every thing had a horrid appearance; the leg quite black, thigh and belly tense; he dying, and died that evening.

January, 1779.

On Saturday evening I was sent for to Truckstreet, to see a man, aged thirty-six, rather corpulent, who had broke his left leg, leaping over a drain, the Wednesday before. The account the attending surgeon gave me of his case was as follows: that the fracture was a compound one, with a large contused wound a little above the internal malleolus, out of which some inches of the tibia had protruded; that he was obliged to saw off better than an inch of it, in order to reduce it; that he bled him nine times largely, during the three first days, kept his bowels free by a laxative, and administered

nistered a paregoric at night: fomentations, and an emollient pultice, were applied to the leg: that every thing appeared favourable; the man having no rapid fever, or alarming degree of inflammatory tension in the leg, until Saturday evening when he became hot and restless, and the foot extremely tense.

Sunday morning, all below the fracture was gangrened; and in the evening the whole leg was as tense as a drum, and the gangrene seemed to ascend fast up the thigh: his belly was rather hard; his pulse was not much quickened or sunk, and he was perfectly in his senses. Next morning the thigh was quite tense. On making incisions into the leg, great quantities of elastic air, and putrid serum, were discharged. In the evening he became delirious, and died that night. The bark and effervescent draughts were ordered; but the disease was too rapid in its progress to admit of their being of any effect.

There is a great similarity in the two preceding cases, both in their progress and event: the only difference was, that the one was bled but twice the two first days, and the other nine times the three first days: however, this seemed to have no effect even in retarding the unhappy event, as both died before the eighth day.

The following is from Mr. Petit's posthumous works. Vol. III. p. 133.

An inhabitant of Mons, in Haynault, fell into a cellar, and dislocated his foot, near the internal malleolus. A bone-setter was using his efforts in vain to set it, during two hours, when I was called : the difficulty of reducing the luxation did not arise from the tension of the muscles ; the astragalus had passed over the internal malleolus without breaking it ; but having lacerated the skin, it was so confined in it, that it could not be returned to its situation by the ordinary extensions. I cut the skin above and below, to remove the stricture, and the bone easily returned into its place : the patient was eased of his acute pains ; I dressed him ; I placed him commodiously, and bled him copiously : all present, especially his friends, were lavish in my praise ; I was then but sixteen ; my youth made me receive their encomiums with pleasure : I did not foresee what was to be the event of my operation : my patient went on wonderfully well the two first days ; the third he had some inquietude ; the fever was kindled,
and

and he felt very sharp pain. I found the foot inflamed, and tense above the malleolus: I dressed him as usual, bled him for the sixth time, and ordered an emollient cataplasm. I called the surgeon-major of our hospital into consultation; he approved of the bleedings and cataplasm; but pronounced a sentence, dreadful to the patient, the family, and my self-love: "The patient, says he, must be bled again, and the apparatus got ready to cut off his leg to-morrow-morning, if things are not better." I could have wished, as well for my own sake as the patient's, he had not been so laconic, nor so hasty in his decision: but men in place do not always attend to certain considerations. We went out together, and he told me, that if similar wounds fell into my hands, I should cut off the leg, and not wait until the symptoms obliged me to it. I asked the reason; he contented himself with adding, that he never saved a patient of that kind but by amputation; and that it only succeeded when immediately performed. Next day the patient's foot was almost gangrened: I performed the amputation; and the patient died five or six days after.

He adds, he has seen several in similar cases : that some had been cured without the loss of the limb ; others underwent amputation ; and of the latter there died more than recovered. He has even seen some get well by the help of nature alone.

May, 1773.

A woman, near sixty, by a fall down stairs, had the inferior end of the cubitus thrust through the teguments. She came immediately to my house : the whole inferior extremity was out of the wound ; I reduced it without the least difficulty. She came next day to the hospital, where it was dressed superficially : there was neither pain nor inflammation in the arm. As she was an extern patient she did not strictly keep to rules.

On the third day, I saw her in the surgery : her arm was exceedingly tense, but not painful. I took her into the hospital ; her pulse was low, but quick. I ordered her a clyster, and her arm to be constantly fomented with the common stupe, and a pultice to be applied.

Next day, the hand was gangrened, and the tension was advancing. I made deep scarifications all along the fore-arm, dividing the
apo-

aponeurosis of the muscles, so as to leave them free. She had the bark, and was constantly fomented; camphorated spirits were added to the stupes, and a compress dipped in them substituted to the pultice. Next day the mortification had taken the arm, and it was scarified; the day following, her belly became tense and painful, her pulse intermitting; and she died, in about two hours after, quite sensible.

The cause generally assigned for gangrenes, in most of our books, is, either an excess of motion in the circulatory powers, or its entire defect; and gangrenes are distinguished into those that succeed violent inflammations, or those proceeding from internal causes, where the circulation stops, through a defect in the *vis vitæ*, or ossification of the arteries, or where some acrid or morbid matter is thrown on the part. But in the cases under review, we see a gangrene, which we cannot impute to either of the above mentioned causes, and that, notwithstanding it is overlooked by most writers, really may be considered as a gangrene which frequently succeeds to violent injuries, and fractures in particular.

If we consider that in the first man's case, no considerable degree of inflammation or pain attended the fracture, no tight bandage or protruding splinter pressed on any vessel, and that from the first alarming appearance, which was ushered in by a rigor, the third night, to the time the gangrene actually took place next morning, was not above ten or eleven hours, we shall be at a loss to account for so sudden a change, which so rapidly advanced as to kill the patient on Saturday: however, this event I have seen in many cases where it was little expected.

If we should say, the concussion, distraction, and laceration of the parts, might so far incapacitate the vessels from continuing the circulation, as to give occasion to a succeeding gangrene; yet, the three first days, we had no sure criterion from which we could infer such a circumstance would take place. In the beginning, no man could reasonably propose amputation, as the case did not appear of that desperate nature; and after the gangrene took place, and was ascending so rapidly, it would have been equally injudicious. In all the cases of this kind I have seen, the gangrene generally came on the fourth day, and the patients never survived the eighth.

NOTE XI.

SECT. V. p. 69. (*)

THIS is strongly exemplified in the following cases.

1771.

A gardener's son, aged twenty-three, had, for some years, his neck on each side monstrously enlarged with scrophulous tumours. After trying many remedies in vain, he was, contrary to my advice, put under a salivation, when they encreased so much and so rapidly, that when he came out of it, he could swallow nothing solid. He had then recourse to a variety of medicines, Lucan spa, &c. One or two of the tumours broke, and discharged an ill-conditioned matter; and they encreased so much, that he could not take a pint of any liquid in the day, and was at last starved to death. These tumours were not attended with cough or hectic.

In 1772, I had a patient, a clergyman, aged about twenty-six, who had been much subject to glandular swellings all his life, which he

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attributed

attributed to lying with an old infirm man during his infancy. While in the college, he was feverely attacked; all his neck was enlarged, so that he could not buckle his stock; the axillary glands were indurated, and became ulcerated, and stretched to the sternum. As he was much emaciated, he was advised to come home, being in Bourdeaux, and try the air of his own climate; he did so, and arrived here in a wretched way; all the glands that suppurated became fistulous, or ill-conditioned funguses, and discharged immensely. The surgeon who had the care of him on his arrival, opened all the sinuses.

After some time, I was consulted; he had then a large tumour over the middle piece of the sternum, which reached to the cartilago ensiformis; above, there was a small ulcer which opened into it; the teguments were exceedingly thick, though there was always matter in it: all his fores under his arms had a bad appearance, not one digesting kindly; the lips ragged and thin, and the bottom crude; he was emaciated, had a strong hectic and nightly sweats, but his appetite was tolerable.

I immediately laid the tumour open, and found the sternum carious. I laid in a small
doffil,

doſſil, ſpread with a ſoft digeſtive, and dreſſed the other ſores with ſome of Goulard's cerate; at the ſame time, I ordered him the bark, and put him, in a great meaſure, on a milk diet, he eating but a little white meat at dinner. After ten or twelve days, though the ſores were not mended, yet he became ſtronger, ſlept better, and the diſcharge became thicker and leſs.

I now made him take the air in a carriage, and he drank goat's whey. He generally took an ounce and an half of bark in the twenty-four hours, in decoction or ſubſtance, as it ſat eaſieſt on his ſtomach. In three weeks he rode every day, but his neck continued much the ſame way. I now ventured to preſcribe him ſome of Huxham's ethiops antimonialis, a drachm in twelve pills, two each night, with a pint of ſarſaparilla decoction, continuing the bark: his neck inſenſibly diminifhed, in five or ſix days after beginning them. I interpoſed ſome purgatives now and then, as the tartar. ſolubil. or ſal polychreſt: the ſores became better, ſo that I applied nothing but pledgits of Goulard's cerate.

It being now ſpring, and after having him about ſix weeks, in which time the glands of

the neck became one third less, I made him quit the ethiops. After purging him twice with the sal polychrest, &c. I made him drink Lucan spa, and take the bark in electary, which he continued to do, drinking three quarts a day, and sometimes four. In about three months, all the strumæ of the neck disappeared, his breast was well, and the wound over the sternum healed. As I did not dress him, I do not know if there was an exfoliation. He regained his flesh, and was in excellent health; but two of the ulcers in the axilla continued open: I was not uneasy to heal them, bid him keep them clean, and dress them with the cerate.

I now sent him down to the salt water, where he continued to drink it, twice or thrice a week, the whole summer; and when he came to town was quite well as to his neck, but his two sores in the axilla were still open. He went into the country, where he continued for some time, taking Lucan spa, was freed from all his complaints; and is at present a strong robust man.

In these two cases, we see the danger attending on those large strumæ, and the length of
time,

time, and variety of medicine we must employ, even to prolong life. Whether these diseases be hereditary or acquired, their seat is in the lymph, which when viscid, forms obstructions and coagulates.

As the venereal virus has the same effect, and very often degenerates into scrophulæ, in the children of diseased parents, we see the reason why practitioners employ mercury in those cases, it being the most powerful attenuant we have; but here it fails us, and often exasperates the disease, except prudently guarded; for by its encreasing the action of the vessels on the fluids, and vice versa, it often brings those tumours to suppurate, that would have lain dormant perhaps for ever.

From a great number of such cases that I have opened, I found in general either the œsophagean, bronchial or mesenteric glands diseased, some suppurated, others ulcerated, some inflamed, all generally of the steatomatous kind; which accounts for the many symptoms scrophulous patients undergo before they die. I have seen the entire left lobe of the lungs converted into a steatomatous tumour, and the heart corroded like a honey-comb, by a purulent serosity, that was to the quantity of half a
pint

pint in the pericardium, in a subject I dissected out of the foundling-house ; and as I have for some years used them every winter for anatomical demonstration, I remarked that most of them had diseased glands, either in the thorax or mesentery, which perhaps may be attributed to the viscidty of their food.

N O T E XII.

S E C T. V. p. 70. (*)

AS I have recommended the extract of hemlock, I thought the following cases might serve, both as an instance of the success we may expect from it, and the caution necessary in its administration.

In June 1772, a man, aged about forty, of a thin robust habit of body, healthy all his life, married, but had no children, without any visible cause had both testicles become quite schirrhous, almost all of a sudden ; that is one half of each, the end opposite the epididymis : the left one was vastly bigger than the right, the last not being much encreased in size. He was four months under it, in which time he
was

was treated by a number of practitioners, and at last by repeated stupes and pultices, the left testicle broke, became painful, and gleeted exceedingly, without the least decrease in the hardness.

In this situation, he was put under my care by a physician. He had a puffy kind of swelling in the groin, attended with constant pain; the left testicle, that is the part ulcerated, was as hard as a stone; above, it was soft, and seemed to have water in the tunica vaginalis; the other was as hard. I at first thought it venereal, and though he denied he ever went in the way of getting such a complaint, I thought he might be deceived. I enlarged this little ulcer, and found part of the testicle converted into a rotten fungus, and the rest quite hard; I dressed him lightly, but he became feverish, and could get no sleep. I bled him, and gave him, for two or three days, a laxative, and kept him to a low diet: the ulcer became worse, no digestion, but a nasty bloody ichor, and constant pain.

I now gave him Huxham's ethiops antimoni-
nalis, with a decoction of sarsaparilla; but
before he took a drachm of it, he said his
pain was intolerable, though the testicle was
constantly

constantly stuped, and a bread and milk pultice kept to it, well supported with a truss. I persisted a week notwithstanding, although I was obliged to give him an opiate every night.

Every thing now bore a bad appearance; the fore became fungous, gleety, and fetid; the testicle was vastly enlarged, and the puffy swelling above the hardness, that is the other half, and epididymis and spermatic chord were very large; the other became painful also. I now, for the last, gave him two grains of turbith mineral every night, with a grain of extract of thebaic; but the third night, he was in such torment, that the next morning he was going home. I begged him to stay, and that I would see what another method of treatment would do for him, to which he consented.

I began by purging with the tartar. solubil. and rhubarb, and fomenting every three hours with a strong decoction of hemlock. After two days, I gave him the extract of hemlock, a drachm to be taken in twenty-four hours, in pills; when he had taken these about four days, his pains became less, his fore began to digest, and the swelling to decrease. I now increased the quantity to four drachms in
twenty-

twenty-four hours : he became giddy for an hour or two, especially when fasting : his fore mended every day. I gave him three spoonfuls of decoction of bark, three or four times a day ; and in six weeks he was so well that I bid him go to the salt water. His sore was not the bigness of six-pence, looked well, and he had no pain in it or in his groin ; he still continued the extract.

When he came back, he looked well, his sore was no bigger than a pea, the hardness, and swelling, one third less, that in his groin gone, he could ride, and went home. After continuing the extract for some time, the sore cicatrized, and what remained of the hardness was of little consequence, and he continues well ever since.

February, 1778.

A man aged sixty, thin, but always healthy, four years ago had a small cancerous ulcer appear towards the right angle of the lower lip ; it gradually encreased so as, when he came into the hospital, to occupy three parts of the lip in a horrid cancer : he came from the country, and was received into the hospital. On examining, I found that the submaxillary glands

glands were affected, so that all operation was precluded.

The man pressed exceedingly hard that I would do something for him; I therefore had his lip fumigated twice a day, as I may say, with the elastic air that arose from a fermenting mixture of spir. vitriol. ten. diluted, and chalk; and after, the carrot pultice was applied: I cannot say he found any advantage by this course.

He was put on a course of the juice of hemlock; a spoonful was given him in a decoction of bark, three times a day, with orders not to exceed it; but he, anxious to get soon well, and studiously concealing it from me, encreased the quantity to six spoonfuls a day with a quart of the decoction of the bark: when costive, he had a gentle laxative, but he seldom wanted it; the only effect the hemlock seemed to have, was making him very giddy, as he used to express it, quite drunk; he had his appetite. The cancer both cleared, and visibly diminished every day in size, and gave him no pain; so that at the end of three weeks, it was diminished at least one half; but before the end of the fourth week, he, in the morning, complained of being weak; although

though the day before he took but three spoonfuls of the juice; however, at dressing, he did not seem much altered, but in the evening seemed drowsy; and that day he took but two spoonfuls. In the middle of the night, he was heard to groan, and to breathe with difficulty, and, on assistance coming to him, he was found dead.

DISSECTION.

Next morning, I opened him: the belly was tense, but the surface of the intestines, and the other viscera were in their natural state; part of the colon was inflated; the exterior surface of the stomach was in its natural state. On opening the stomach, the villous coat seemed excoriated or raw, and so tender, that, upon rubbing it, there oozed out drops of blood from its pores: the œsophagus was in the same condition, but the duodenum was free. All the thoracic viscera were remarkably sound for so old a man: the heart was rather small, but firm; a slight polypous concretion was found in the right ventricle; and it seemed as if the coagulable force of the lymph

lymph was much lessened, the blood seeming to be morbidly dissolved. The lungs here and there adhered to the pleura. The brain was found, but the vessels seemed to contain little blood; the plexus choroides was remarkably pale; not much water in the ventricles; and the dura mater appeared to adhere to the skull by the insinuation of its fibres, rather than by its vessels, many of which seemed to have been obliterated. The brain did not appear intimately to fill the cranium.

That the juice of hemlock is a powerful deobstruent and sedative, I have always experienced. I have never seen its administration, although taken in larger quantities than this man took, productive of bad effects; but it is probable the air of the city, and anxiety of mind, contributed, with the sedative power of the hemlock, to precipitate this poor man's falling a victim to the cancer. As for the excoriation that appeared of the internal coat of the stomach, I attribute it to his swallowing his saliva, loaded with acrid, cancerous sanies.

This same month, two women, who have the uterus prodigiously enlarged, and the os uteri cancerous, attended with sheddings, constipation,

stipation, difficulty in making water, &c. take the juice of hemlock, from three to five spoonfuls a day, without seeming to be much or at all benefited by it; as does a lady for a large cancerous breast, not ulcerated. Indeed the three cases are very bad ones.

The two first died in about two months after I wrote this case; in one there was every symptom of a dissolved state of the fluids; as she was exhausted by hæmmorrhages from the gums, as the other was from the uterus. The third lady's breast has broke out, and she died soon after.

N O T E XIII.

S E C T. V. p. 72. (*)

THE following cases shew, that those perforations are generally succeeded by disagreeable symptoms, sometimes reducing us to the necessity of amputating the limb.

Patrick Fahy came to the hospital, with an ulcer above the internal malleolus of the right leg. He had been under the care of many

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furgeons. I found the tibia enlarged under the ulcer; and was obliged to lay the bone bare with a caustic, to the extent of two crowns, in order to expose the whole surface of the caries; in some days after, I made several perforations with a large gimblet: two days after, he was taken with violent shiverings, succeeded by a rapid fever, which held him for a fortnight. The shell exfoliated in a month, and he got well in about three. He had the blue pill, and decoction of the woods, latterly.

In another similar case, where I trepanned the bone, the patient had like to die of the fever.

March, 1778.

A young man, aged nineteen, had a great collection of matter over the tibia, just under the knee; he had no previous indisposition, but pains in his bones, occasioned, I believe, by hardship. He was taken into the hospital, and on examination, I found he laboured, for more than a fortnight, under all the symptoms of an absorption of matter.

I made an ample incision, and evacuated a great quantity of matter; I found the bone

carious to a great extent, and made perforations with a large gimblet. I gave him the bark in large quantities; but notwithstanding, his fever, shiverings, and want of sleep continued, with more or less violence, for near two months, when at least three inches of the tibia separated, just under the articulation of the knee, and came away nearly entire. He then began to gain ground, and gradually recovered; but was not well at the end of nine months; after which time he could bear very well on the leg, and no deformity remains, but a hollow, which decreases every day.

September the 3d, 1774.

A young man, aged twenty-five, or thereabouts, had, for ten years, a sore on his right leg, which was treated often, but broke out again. When he came to the hospital, the ulcer was of the breadth of a man's hand, and the tibia in the middle was black and bare for three inches, and much enlarged: his habit of body, which was robust, seemed but little affected.

As the bone was diseased above and below the ulcer, I laid it bare by caustic to the extent of the caries, and perforated it up and

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down with a large gimblet, in order to hasten the exfoliation: the day after, he became restless and exceeding feverish: he had the saline draughts, and a paregoric at night, but to no purpose. The leg became of an enormous size, the discharge great, the foot œdematous, and the ankle painful: he had the bark; but he began to shiver the 12th, and had no rest at night: his pulse was exceedingly quick, he flushed in the face, and had profuse sweats. He continued to shiver irregularly to the 19th, when I took off the leg.

On dissecting it, I found the articulation of the foot carious, and some matter in it. This disease certainly began, and was formed, from the time he came into the hospital, and, I verily believe, was due to the irritation of the caustic and perforations: for it is to be remarked, he walked fifteen miles from the country to the hospital, which he could never do had the articulation been engaged.

The 20th, His pulse was better than the day of amputation, but he had profuse sweats, and his pulse was still very quick. 21st, Much in the same way, but could not make water; I was obliged to introduce the catheter,

catheter, and drew off a quart of flame-coloured urine. In the evening he was seized with a shivering, which lasted an hour, followed by a profuse sweat: he had half an ounce of bark every three hours, in Port and water, given him: a stool was previously procured by clyster.

22d, His pulse still quick, and the sweats not diminished: the stump was opened, and appeared crude and gleety; at twelve he shivered an hour, and sweated after: he had a blister to his leg: at eight in the evening he shivered again, his teeth chattering: he had three drachms of the bark, every two hours, in Port, and was supported with broths: his pulse, whilst shivering, was not to be felt.

23d, His pulse was quieter, but the sweats much the same; the stump still gleety: as he had no motion, some papers of sal polychrest and rhubarb were ordered: he had some appetite, and was ordered a bit of chicken. At twelve at night he shivered again for half an hour, and slept but little. 24th, His pulse was quick, and the sweat profuse, but he was quite sensible: his bark was continued as usual; the stump was not much changed for

the better ; he had no return of his shivering, nor did he sweat so much.

The 25th, In the morning, his pulse was still quick ; he began to complain of the stump's being painful ; it began to digest, and the gleet seemed changed into matter. He drank two quarts, in twenty-four hours, of barley-water acidulated with spirits of vitriol tenuis ; his sweats were less ; at ten at night his pulse was very quick, but his skin not so hot : as he did not pass water freely, I gave him forty drops of tinct. thebaic. with as much spir. nitri dulc. in a cup of Port. At night he sweated much, but had no rigor.

26th, Much better, and the stump clearing.

27th, His sweats much diminished ; he had some papers of sal polychrest and rhubarb ; they purged him four times. At night, he slept but little, and sweated profusely.

28th, His pulse low and quick ; the discharge from the stump was thin, and it looked pale : during the day, his heats came on, and a partial sweat. At three, he got a pint of Seltzer water, and the bark in Port was continued as usual, with a tea-spoonful of sweet spirit of nitre. In the evening, his pulse was high and quick ; he was extremely hot, and
his

his face flushed; at ten he took another pint of Seltzer water. He sat up those two days in the bed; the night he passed but indifferently, slept not an hour, had frequent heats on him, and sweats. No bark was given in the night.

29th, His pulse exceedingly quick, and fuller than it was the morning before; goes to stool regularly; he had a pint of the Seltzer water; a better appetite; the stump looks better; the discharge good; the ligatures all come away. At eight in the evening his heats came on again, and a partial sweat: the heat was 96 of Fahrenheit's thermometer, and his pulse at 100, which was much the same all along; his urine was limpid, and he passed it easy and in good quantity. He had a pint more of Seltzer at ten, and he drank half a pint at five. He slept but an hour and a half, and had returns of his heats, and sweated.

30th, In the morning somewhat cooler than at night, but his pulse at 96: he had now an ounce and an half of bark, with two drachms of tartar solubil. in eight papers, one to be taken in a cup of Port every three hours,

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and a pint of Seltzer water. He continued much the same way, but had a better appetite, and his urine pale : at ten, he was not so hot as last night, nor inclined to sweat. He had two stools this day ; at night, his heats much diminished, and sweat but little. No alteration in his medicine.

October the 1st, Better in every respect, his pulse still quick ; and from this time his heats, sweats, and quickness of pulse gradually left him ; but still he continued the bark, two drachms every two hours, and light nourishment, until the 15th or 16th, then left off his medicines, being able to get up and walk about. He recovered, and soon after left the hospital in perfect health.

NOTE

N O T E XIV.

S E C T. VI. p. 87. (*)

THE following case shews the variety of symptoms that may arise from the absorption of matter, in apparently slight wounds.

December the 1st, 1775.

Walter Berry, aged twenty-six, a strong, robust, young man, received a kick from a horse over the tibia, where we generally amputate: the wound it made was small, not bigger than a fixpenc, but the bone was bare; the violence was great, for he fell with the stroke. He walked to the hospital next day, and as it was considered as a superficial wound, not being attended with any alarming degree of inflammation, he was dressed without any particular attention. For the first three or four days, nothing unusual occurred; he had a dose of Glauber salts, and walked every morning to the hospital: about the fifth day he was unable to come, became feverish, sent for dressings,

dressings, and remained at home for near a week, and then was carried to the hospital.

On examining, the leg seemed not much inflamed; the bone was visibly bare, and the integuments detached from it; there was some matter collected on the inside, which was opened, and another opening made on the outside of the tibia; he was purged, and a flannel-tailed bandage put on. During the week he was absent, his fever was that which is attendant on matter concealed. The bark was given, and he seemed to go on very well for ten days; but then the sores looked ill, and he was seized with irregular shiverings, attended with a quick low pulse; the leg was not at all inflamed or enlarged, but I found the matter had made its way down, along the external side of the tibia, under the soleus. I immediately made a large incision downwards in that direction, so as to lay open the whole tract; I found the tibia partly bare and rough. His bark was increased, two drachms every two hours, along with the decoction, and he had a drink made of half an ounce of bark boiled in three quarts of water, acidulated with spirit. vitriol. ten.

On

On the 10th, the fever and rigors abated, and in a few days he seemed pretty well; but a hæmorrhage broke out from a very small artery, which gave some trouble: he had a low quick pulse, constantly attended with a dry parched tongue. He now became hard of hearing, and in some days after could not see, and raved at night, but was sensible when spoken to; the fore gleeted immensely, though he was, for the most part, dressed twice a day: I applied thin slices of sponge for the whole dressing, which answered very well, imbibing the matter; he grew better, the fore looked much better, and the shiverings left him, but his pulse continued much the same. Several pieces of the tibia came away, and the bone seemed very weak; he had a severe cough, and such a difficulty of breathing, that blisters were put to his leg and thigh, and afterwards to his back. As the wound had no great discharge, the sponges stuck so close, that they gave extreme pain at dressing, and were left off.

He was now much exhausted, and the tibia separated in two, at the place the kick was received; he for some weeks past raved incessantly; the thigh was full and œdematous,

tous, and seemed as if it was a purulent one, without any particular collection.

January the 9th, As he seemed past hopes of recovery, I gave him no more bark or medicine, as he loathed them, he having taken a pound and a half of bark in the course of his illness, and spirit of vitriol tenuis in all his drink, and eat China oranges every day : Port whey, broth, and a bit of chop, was what he mostly used. The 14th, a purging came on him : a spoonful of a mixture with confect. cardiac. and bol. gall. was given after every stool.

The 16th, he did not rave so much, nor was the discharge from the leg so great. The ends of the tibia were at a distance, and quite carious, and appeared as a bone macerated in spirit of sea-salt. He had mortified eschars on his rump, and on his back, where he was blistered : he slept between whites, but was uneasy. All along, he was well supported with broth, meat, wine, and wine-whey ; a paregoric when necessary. He shivered frequently, and had a constant purging, and died seemingly exhausted, January the 20th. Although this man was strong, able, and seeming healthy, I observed he had
a score

a scorbutic eruption round his ancles, which, he said, he was subject to for some years.

In this case, we see the effects of concussion in long bones; for certainly, to it are we to impute the formation of matter, and sloughy disposition round the bone, that succeeded in ten or twelve days after the accident; how similar its progress is to wounds in the head, allowance being made for the importance of the parts interested; how obstinate are fevers proceeding from absorption of matter, what variety of symptoms succeed, and how hard it is to effect a cure, we may experience from this patient's case. Amputation could not, with propriety, be proposed, nor would it, in all probability, have relieved him in the least: and every care and attention was given, by large incisions to give early exit to the matter, from the time he was received into the hospital.

NOTE

N O T E X V .

S E C T. VI. p. 88. (*)

THIS is strongly evinced in a case related by Dr. Fothergill, in the fifth volume of the London Medical Observations, of which I shall give the following brief abstract.

A man, aged forty, was bit by a cat, on the 14th of February 1774; the day after, he took the Ormskirk medicine, strictly conforming to the directions. He remained well until about the middle of April, when he was seized with a pain in his knee, which he attributed to the rheumatism.

The 16th of June, he was seized with the symptoms of the hydrophobia. The doctor had him bled six ounces, gave him a bolus of a scruple of native cinnabar and ten grains of musk, every four hours, ordered his bowels to be occasionally kept free by clysters, to some of which a drachm of Dover's powders were added; had him carried to the warm bath, after which two drachms of strong mercurial ointment were rubbed on his legs and thighs.

Next

Next day he gained no ground. He was ordered to be bled standing, to be carried again to the warm bath, the clyster with Dover's powders to be repeated, and half an ounce of mercurial ointment to be rubbed on his legs and thighs, one scruple of extract of thebaic. in twenty pills, three to be given when he came out of the bath, and two every two hours after. This treatment procured no remission of his symptoms; he never slept from the beginning, lost ground every hour, and died the third or fourth night.

There is one case in the same volume, transmitted by Dr. Raymond of Marseilles, which terminated fatally, notwithstanding the administration of a variety of remedies, accounted specifics. The doctor draws the following consequences; that neither Cobb's powders, turbith. mineral. nor the anagallis flore purpureo, are specifics in the hydrophobia; and he seems to think the good effects of mercurial frictions very precarious.

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